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PHILOSOPHY;

or,

THE SCIENCE OF TRUTH.

PHILOSOPHY;

or,

THE SCIENCE OF TRUTH.

A TREATISE

ON FIRST PRINCIPLES,

MENTAL, PHYSICAL, AND VERBAL.

By

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OF LINCOLN'S INN.

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NOTICE.

If any persons should condescend to discuss publicly the theory of language developed in this volume, in a manner calling for explanation or reply, they will greatly oblige the author, in these days of literary deluge, by directing his attention to their publications, anonymously or otherwise.

A PREFACE TO BE READ.

WHAT is Science? what is Philosophy? what is Truth? In a work of great reputation and ability, we are told that "the discovery of universal truths is the proper end of science."[1] But universal truths can only be expressed by means of universal names or general terms. The same author, however, early in the same work, tells us that these general terms, as names, or mere denotatives, "have, strictly speaking, no signification."[2] Whence it clearly follows, that, according to some of this philosopher's *words*, the proper end of science

[1] Mill's "Logic," ii., p. 119.

[2] *Ibid.*, i., p. 36.

is the discovery of truths that have, strictly speaking, no signification! Such, I say, is one *verbal* result of this advanced thinker's philosophy.

But what makes, in my opinion, Mr. Mill's Logic and Philosophy more inconsistent, if possible, is this, that he tells us, also very early in his work, that *words* "shall always be spoken of by him as the names of *things themselves*, and not merely of our ideas of things."[1] So that Mr. Mill has two definitions for his general words, firstly, to mean "things themselves," and, secondly, to have, "strictly speaking, no signification"! Hence, of course, philosophical and scientific orthodoxy can be made his doxy, or "things themselves," and philosophical heterodoxy is, of course, his opponent's doxy, or "words without signification"! Starting from such satisfactory logical principles, as we propose to

[1] "Logic," i., p. 24.

show in the course of this work, Mr. Mill clearly proves that all mathematical definitions have, strictly speaking, *no signification*, and that all mathematicians, from the days of Euclid to those of La Place, have been in error in the very foundations of their science, viz., in the meanings of the words they were using!

Dr. Whewell, as a mathematician, takes a different view of scientific truth, and seems to have calmly advised Mr. Mill to study pure mathematics; advice which Mr. Mill assures us he has followed, without being in the least converted to Dr. Whewell's *ideas* of scientific truth and certainty!

Sir John Herschel holds the scales pretty evenly between the logician and the mathematician, but inclines rather to the logician, and compliments both sides. He tries to satisfy both sides without deciding the question which, he justly says, is as old as the

days of Plato and Aristotle.[1] This might satisfy most people if there were not such a word as "Cause," and such a thing as "First Cause." Mr. Mill, however, has his signification for *cause*, and so has Dr. Whewell; and they don't in the least agree! and Sir J. Herschel throws up his pen almost in despair at "such a state of language,"[2] but not only leaves the question, whether general words are the names of "things themselves," or have "no signification," unsettled, but continues to compliment Mr. Mill as a logician, although he agrees with Dr. Whewell as a moralist!

There is, in short, what might be called a triangular duel between these three great philosophers, three of the most learned and able men in England, which would be highly ludicrous if it were not saddening, as directly

[1] "Essays," &c., p. 250.
[2] *Ibid.*, p. 674.

involving the highest truths of science, philosophy, and religion!

My object in thus alluding to the question of the meaning of the word *cause*, is to show by a high and glaring example, still existing in the midst of us, how absurd it is to expect to settle questions by means of our words till we have first settled what our words are in scientific truth.

The first step, therefore, in philosophy is, in my opinion, to settle the true scientific force or meaning of a general term. The solution given in this work, in Chap. IV., was first published by me in a forgotten pamphlet nearly twenty years ago. It is not, therefore, a late thought, or occasioned by the philosophical dispute above alluded to. But, in truth, universals, abstract words, or general terms, have been the battlefield of philosophy in all ages, and the battle rages as lively as ever whenever man's inner

convictions are touched by a WORD, as, for example, by the word "Cause."

The higher the personal authority for error, the more dangerous, of course, it is. No higher compliment can be paid to Mr. Mill's Logic, than to say, that it has puzzled Sir John Herschel, and left him in a state of doubt, admiring the logic, but not satisfied with the conclusion, though it seems to have had no effect on Dr. Whewell. In my opinion, all Mr. Mill's paradoxes may be very clearly traced to his own dubiety and double dealing with abstract terms; in short, strange as it may appear to advanced thinkers and admirers of his able writings, to bad logic.

It may seem arrogant to speak thus unflinchingly on questions which have divided the great authors named, but Coleridge has justly remarked, that no man can be properly called arrogant who is asserting a truth. This book is a discussion of Truth, not of authority

or esteem; and these great authorities are all at war with one another. But to speak most humbly; in the temple of truth, a mere labourer may detect a rent in the foundations of the building overlooked by the great architects busy with the acanthus leaves; or a peasant may see both sides of a shield about which great knights are doing battle. But "I have no toleration, and wish to have no toleration for false opinions," which, in my judgment, are only false words, the great corrupters of mankind. There is no such thing as logical cruelty; and nothing wrong in doing our best to crucify a verbal shuffle. But especially when we find the verbal error the stronghold of a materialistic philosophy, and pointing or leading directly to one or other extreme of Atheism or Pantheism, or ending in confusion, the moral and intellectual principles of our nature both combine to urge us, if possible, to expose

and clear it up. The controversial part of this volume, therefore, is rather to call attention, and to show the importance of the abstract *verbal* question, which, in these days of inductive philosophy, is too often passed over as of little or no consequence to truth itself, whether scientific, philosophic, or moral truth. In my opinion, this abstract verbal question lies at the very foundation and root of all human truth, and that I hope this volume will go some way to establish. In short, this Essay is a protest, humble but earnest, against that "Scientific dualism" which has hitherto ended in total philosophic confusion; and is an attempt, the success of which the candid and intelligent reader must judge, to review "the widest generalization of which the human mind is capable."

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PREFACE TO REISSUE.*

Before men can think or reason on any subject whatever, certain preliminary assumptions are necessary and unavoidable; and if men could agree upon what is to be taken for granted, no doubt a great number of disputes on philosophical subjects would disappear. In the first place, as we cannot reason or think about nothing, it is clear that the reasoner always assumes the *Existence* of the thing about which he proposes to reason. In the second place it is clear that he cannot propose any question concerning the thing to be discussed, without he first assumes the *possibility* of such question.

Thus certain *Existences* and *Possibilities*, or, to use the Logical names, Categories and Predicables, must always be assumed in every discussion before men can possibly think or reason together, in any way whatever.

But it is also true that every absolute conclusion assumes and implies that there is nothing in the whole universe that can over-

* Consequent on the failure of the Publishers. In one notice of this work, the author has been accused of want of courtesy towards those "Deeper Thinkers" whose opinions he has attempted to refute. He takes this opportunity of expressing his hearty sorrow for any words which could possibly offend. But he finds that expressions which he looked on rather as an attempt to enliven a dull subject with possibly doubtful wit have been mistaken for "self-sufficiency and swagger," of which, however, he feels himself innocent.

turn it; and therefore, in order to arrive at any absolute Truth by thinking and reasoning, it is also unavoidably necessary that our preliminary assumptions should in some way exhaust or embrace the whole Universe of Existence. Every one who asserts any thing as being absolutely True, has already in fact assumed some system of the Universe.

The common scoff that the Mediæval schoolmen limited the Universe to the Categories and Predicables of Aristotle is in fact a scoff at the necessary and fundamental laws of all thinking and reasoning whatever.

If we are dissatisfied with Aristotle's fundamental assumptions then it becomes our duty to suggest better; for thus only can any truth be established by thinking and reasoning. But we must always test the truth of our assumptions and conclusions as far as possible by observation and experiment.

In this Book I have assumed that there are three, and no more than three, distinct *Existences* in the Universe, viz., MIND, MATTER, and LANGUAGE; the component factors of all human Knowledge. I also think that men can only discuss two *possible* kinds of questions concerning these three things, viz., their STATES and their RELATIONS. I have also attempted to shew that *Time*, *Space*, and *Number*, the great measures by which we fix our conceptions of the External Universe of Matter are respectively particular relations

of Mind, Matter, and Language. *Facts* may be either States or Relations. But *Causes* and *Laws* are all Relations.

But the main object of this Book is to shew that all abstract words or names whatever are scientifically-speaking products of certain Factors; which factors are the abstract likenesses which the individuals of the class bear to each other. And thus I challenge all reasoners upon Abstract Subjects to define their words by setting down the list of factors which in their opinion go to compose the chief abstract terms which are in dispute. In short my chief object is to propose a new and more perfect method of defining abstract words. Of this method I give two short examples in Chapters VIII. and IX. But in truth until some better method of defining our abstract words is adopted the discussion of most abstract philosophical questions seems at present almost waste of time.

Thus, for example, when a learned author writes a Book * as he says "to explain Life, *Mind*, and Society; in terms of *Matter*, motion and force;" the question he proposes to discuss appears to my mind fundamentally absurd and impossible! The reason is that I assume that Matter and Mind are two distinct and contradictory things, the Conscious thing and the *un*conscious thing. He, on the other hand, must of necessity assume, as I conceive,

* Herbert Spencer's "First Principles."

that Mind may be evolved from or is a state of Matter; or, in other terms, that motions and emotions or the conscious and its contradictory the unconscious may be one and the same thing! To my mind such reasoning appears utterly absurd or impossible. He might as well propose to prove that a steam engine thinks and reasons when it uses its *governor*; or that a waterfall feels pain and grieves whilst pursuing its headlong course!

Since the overthrow of the authority of the Aristotelian philosophy therefore, it is more than ever necessary that each writer should state his fundamental assumptions; what are the *existences* which he assumes to exist, the *questions* which he assumes to be *possible*. The author trusts that the simplicity of the method which he has proposed for defining abstract Terms by their Component Factors will commend itself to the intelligent reader.

The metaphysical arguments contained in this Book may also be expressed in a very few words. If we assume Mind and Matter to be distinct and different, then Physiology teaches us that the impressions of external things on our Bodies pass along the microscopic nerves of our nervous system into the grey cellular matter of the Brain. But we are there as far as ever from knowing the great step which converts the minute physical vibrations, or somethings in our brain, into thoughts or emotions or mental principles, into somethings

in our minds. We do and can trace the roads pursued by external impressions into minute infinitesimal somethings which pass along our nerves and exist in our brains. There we individually know that they are converted into thoughts, into mental Emotions or Judgments; and to these thoughts we give names and manufacture *words* for that purpose, and send them forth along our outcarrying nerves to our fellow-men; which words we call the names of the things which we assume to exist and which have produced the original impressions on our bodies. But as the nervous vibrations as well as the mental thoughts or emotions of each man can be known only to himself, the only things which men have in common in this whole process which can be compared together are the ultimate *Human Words* which they make or adopt, and these words are therefore the only component materials of all Human reasoning and knowledge. Men cannot even speak of or discuss other men's thoughts or any external things in nature; but they can discuss only their own or their neighbour's words for their private unknown thoughts of things. Thoughts and Things *themselves* are by man's nature effectually and altogether removed from all human discussion. We can reason, but only with words and about words. But our words, if truly framed, may teach other men to think rightly about the thoughts and things which

we assume to exist. If the words for our fundamental assumptions are consistent with Truth, and if our conclusions are strictly *deduced* by accurate reasoning from those fundamental assumptions then our deductions are Truths. Induction may often assist us in guessing at new truths, but never can give us any absolute truth whatever. We make by induction only probable guesses from which we may sometimes frame new fundamental assumptions, just, for example, as Dalton's observation of definite proportions in chemistry has led to the atomic theory of matter, and Dalton's Law has become a *necessary* and *absolute* Truth, founded on the word *Atom* or ultimate particle (p. 206).

In every human conception whatever there are three Factors acting in unison together. The Thing or *object* producing nervous action or emotion in the Body. The Mind or *subject* passively recipient of the action of the object and actively emitting the Word expressing the conception—and the *word* itself which embodies the Mental Conception of the Thing and which Word is actively capable of transmitting that Conception to other minds.

These three form a tri-Unity, a Unity in Trinity, each actively engaged in creating each and every Human Conception. If this be true of every conception, it is of course true of all Human knowledge. Therefore it is true of self-knowledge and of the Concep-

tion of Spiritual Existence; it is true of the Highest Conception man can form, *i.e.*, of the Conception of the Deity as a purified Conception of the Highest Human self-consciousness, the dimmed Image of its Maker. Thus the doctrine of the Trinity, as revealed in Christianity, is shewn to be a necessary Truth deduced from the simple assumption that man is a *Spirit* enclosed in a *Body* and capable of communication with other minds by means of *Words*, symbols, or Language. In fact, the assumption which all men must make that the Universe consists of Mind, Matter, and Language, or of Spirits, Bodies, and Words, involves this deep and mysterious doctrinal Truth—the Unity in Trinity and Trinity in Unity of man's Conception of the supreme Godhead! Thus our knowledge of the states and relations of things and persons may be continually increasing, but yet we have no absolute truths except verbal truths. Human Words are the only result of all our reasoning, Words, perhaps, expressing deeper views of the nature and constitution of the Universe!

These Words which thus pass and repass along men's nervous systems and are elaborated in men's Brains are as it were the material bridges between mind and mind and rule all mankind by their influence. Their importance can hardly be over-estimated, but metaphysical discussion is not and cannot be a discussion about the minds and mental

things of different men which we cannot in any wise compare, but only about men's *words* which we can and do compare. Thus we are brought again to view the importance of adopting some new and better method of defining our Words than has hitherto existed, and more especially in all Metaphysical and Philosophical discussion.

Definitions of Words used in this Work.

All Things or the *Universe* of Existence	is	The product of Mind, Matter, and Language.
Things are of three kinds, Mental, Physical, and Verbal.		
Questions are of two kinds only, viz., States and Relations.		
Knowledge	is	Mind, Things, and Words.
The Human Mind	is	Emotion, Intellect, & Will, each of which is a Mind.
Matter	is	Force, Mass, and Form.
Man	is	Body, Soul, and Spirit.
Infinite Number	is	Unity and Infinity.
Infinite Time	is	Number and Mind.
Infinite Space	is	Number, *Negative* Matter, and Time.
Life	is	Matter, Organisation, Absorption, Assimilation, Secretion, Reproduction for *Vegetable* Life, Add Sensation for a *Zoophyte*, Add Nervous Action or Intelligence for *Animal* Life, Add Mind or Spirit for *Human* Life.
Law	is	Words and Order.
Cause	is	Things, Action, and Mind.
Effect	is	Things and Passion.

PHILOSOPHY;

or,

THE SCIENCE OF TRUTH.

INTRODUCTION.

(1.) *The Confusion of the "Fundamental Antithesis" Philosophy.*—"The labours of philosophers up to the present time," wrote Kant, eighty years ago, "have aimed at erecting an edifice of philosophy, but to my eye this edifice appears in a very ruinous condition." If he could now look down upon what has followed his own able attempt to show that the highest philosophical wisdom must end in the deepest humility, or, as he expresses it, "That in respect to the essential ends of human nature we cannot advance

further, with the help of the highest philosophy, than under the guidance which nature has vouchsafed to the meanest understanding," what would he have now said to the confusion, worse confounded, which later philosophers have built on those Kantian words and doctrines that, as he thought and wrote, were sufficient "to settle and conclude all possible questions of philosophy"?

Who can describe the wordy conflicts that have been carried on since Kant's day about "the one and the manifold," "the subjective and objective," "the pure reason and empirical reason," "intuitions and representations," "ideas, conceptions, perceptions, and intuitions," the "ego and non ego," "thoughts and things," "facts and theories," "necessary and experiential truths," "the possibility of purely thinking the unconditioned," "the two unities that are one unity," or, in short, "the fundamental antithesis of all Philosophy"? Has Kant's most able and well meant attempt really settled anything that be thought he had settled? or has his Philosophy, and its natural or unnatural developments, tended to

satisfactorily answer any of those questions which he fondly hoped he had found the means to set at rest for ever?

The simple fact remains, that Kant flung into the seething caldron of European Philosophy a number of *new words*, about which has been carried on ever since an unceasing warfare. The work that Kant proposed to do still remains to be done. Faith and Reason have neither gained much nor lost much by all the weapons that have been thrown, and "the edifice of Philosophy" is still as ruinous as ever.

In such an embroiled arena, what is wanted is not a glove of defiance, but a dove of peace. If, therefore, we seem to plunge into the middle of the philosophical field, it is not to handle the verbal weapons which have been hitherto used, but rather to show that those weapons, their words, have not hitherto been in any way prepared for the contest. In truth, most ordinary mortals rather approve of the Scotchman's definition of metaphysics, "Just twa men havering; the ane does na ken what the ither says; and the ither does

na ken what he says himsel'!" Most of those who look on, feel almost like that Turkish cadi who determined the cause by ordering both parties to be beaten, and confiscating the subject matter in dispute.

In fact, hopeless as the attempt may seem, and powerless as we may be to enforce the judgment, the Turk's decision is something like what we propose to do in the following pages. We desire, if possible, to silence all parties amongst modern antithetical philosophers, and to confiscate, by suppressing, the antithesis about which they have carried on the warfare. We affirm that there is no fundamental antithesis in the human mind or in human knowledge. We assert that the doctrine of a couple can give as little certainty or equilibrium in mental, as in mechanical philosophy, and that it can only continue, as it has hitherto proceeded, in never ending and inconclusive reasoning in a circle.

(2.) *Mr. Herbert Spencer and the Universal Postulate.*—Any witness almost is competent and sufficient to testify to a state of confusion in which he has taken an active

part, however unfit or unable the witness may be either to state the cause or to suggest the true remedy. Let us summon first "an advanced thinker,"[1] the latest self-styled *realist* in England. This philosopher demands a *datum*, a "universal postulate;" and thinks that its absolute necessity is proved by "the utter confusion of current opinion on all fundamental questions." He says that "this universal postulate must be found before the endless disputes can be brought to an end;" and insists that the possibility of defending theories so utterly at variance with univeral belief as idealism and scepticism, and the doctrines of Fichte and Hegel, implies one of two things—"some fundamental flaw in the modes of argument," or, "that all thinking is fallacious."

This witness, who is himself a philosophical

[1] "Principles of Psychology," p. 5, *et seq.* The last "Westminster," July, 1860, p. 172, calls Mr. Spencer "a severe and stoical thinker." These advanced thinkers provoke and encourage one another like schoolboys taking a cold plunge, "Now, brave lads, who'll be overhead first?" It would be amusing, if it were not painful, when one remembers that the subject involves, in substance, Eternity and Salvation, the immortality of the human mind, the resurrection from the dead!

doctor to the extent of an octavo volume of 620 pages, proposes a cure for the prevailing disease in the body politic of philosophy, which is the most ludicrous possible. This cure is a panacea of his own composing, a dose to be henceforth swallowed by all philosophers, in the shape of "Mr. Spencer's universal postulate." This postulate complicates and involves nothing less than the seven following dubious words, ideas, notions, intuitions, or, as Mr. Mill might say, "names of things themselves" that have, "strictly speaking, no signification," viz.: 1st. BELIEF, in two meanings, not saying which! 2nd, Proof! 3rd, Inconceivability! 4th, Negation! 5th, Invariability! 6th, Existence! 7th and last, a word which, he says, if all the other six are granted, may mean what we like, *i. e.*, "anything it may," viz., TRUTH! There is a collection of dubious words, or ideas, or things, for a rational and deliberative being to bolt affirmatively in one sentence as a *Postulate!* But listen only to the consequences threatened by the doctor in case our philosophical stomach should refuse to submit to such an awful

administration by this "advanced thinker." He tells us that we are all under "the inexorable necessity" of granting this universal postulate (*i. e.*, of swallowing a grammatical hash involving all those seven dubious words or things, almost any one of which might well employ any man for half his philosophical life before he could be certain of its true and exact meaning) as "our only guarantee" for "the reality of our consciousness, of our sensations, and of our personal existence!" nay, more, if possible, "our only guarantee" for the truth and certainty "of any axiom," or "of any step in any demonstration!" To do this realist philosopher real and substantial justice, notwithstanding that my personal existence has been thus put in jeopardy, and that my consciousness has been left without any guarantee, according to the philosophy of this "advanced thinker," I subjoin in a note his own actual words, so that all my readers may realize their own consciousness and personal existence, by taking and adopting, if they can, *i. e.*, swallowing, this universal postulate in any intelligible sense whatever.

I would merely observe with all humility, that in Euclid's school, a postulate always ranked with axioms, or supposed self-evident truths; and in those early days, before advanced thinking had gone ahead so far backwards, it meant what no reasonable person could deny *à priori*. It is absurd to demand, at the point of your logical or philosophical spear, assent to a proposition involving six or seven doubtful words, which any man with half a grain of logic can pull to tatters. But the absurdity is infinitely greater when the philosopher, the advanced thinker, avowedly has *two* senses for *one* word, and either cannot, or does not, tell his patient or his disciple in which sense or in what meaning the word is to be taken. This indeed is "severe and stoical" logic; this is the climax of advanced thinking.[1] The wisest of men are liable to be

[1] Mr. Spencer says, note, p. 30, in reference to a passage in the text, "I have given the word *Belief* two parallel meanings; using it in the one case to describe the *persistence* of a state of consciousness, and in the other a persistent *state* of consciousness. The context [always a refuge when a man cannot explain himself] will in each case show in which sense it is to be understood." Again he says, at p. 31: "Mean what we may by the word *Truth*, we have no choice but to hold that *a Belief which is proved by the inconceivableness*

misled by a word, and unwittingly to find themselves defending what is indefensible. The proper course is then to correct the words and the thoughts they represent. But when an author avowedly uses one word in two senses in the same passage of his work, he thereby confesses himself in such a state of dubiety and uncertainty on the subject of that *of its negation to invariably exist, is true.* We have seen that this is the assumption on which every conclusion whatever ultimately rests. We have no other guarantee for the *reality of consciousness*, of *sensations*, of *personal existence*; we have no other guarantee for any axiom; we have no other guarantee for any step in a demonstration. Hence, as being taken for granted in every act of the understanding, it must be regarded as the *Universal Postulate.*" Here we are not told in which of Mr. Spencer's two meanings the word Belief is to be taken in the postulate itself. Many or most rational Englishmen would deny that Belief properly means either a *persistent* state, or *persistence* in any state of consciousness. The doctrine of realism is the existence of things independent of consciousness, and according to this doctrine, the Belief [the thing believed] should therefore exist whether the believer is conscious or unconscious. Thus this realist contradicts his own doctrine in the very meaning of the word Belief, and sets out on his philosophical career on behalf of realism, not only with an unmeaning postulate, but with a clear self-contradiction. In fact, it is impossible to tell from Mr. Spencer's words, whether this "realist" does or does not believe that the sun exists at noonday, when he, Mr. Spencer, goes down to the cellar, or shuts his eyes, and does not feel the sun's rays. See the whole passage about "the Sun," p. 29.

word, that he becomes entitled not to refutation, but to condemnation. However deficient a man may be in his powers of invention to make a new word, yet he can always put a blot or a blur, some mark or other, over the word in its second meaning. Now, an Englishman who cannot use the word belief without getting confused and involved with the two meanings to the word—*the act* of believing, and *the thing* believed—evidently must have a belief with a blur or a blot; and he is not entitled to refutation, for his belief refutes itself by its incoherency. Mr. Herbert Spencer's belief is, on his own showing, of this kind. It has a blur in one or both senses.

Indeed, it generally happens that men who are in a state of doubt about a word, have no clear meaning to it at all, or not such a meaning as their fellow men can at all accept. So it is with Mr. Spencer's belief. His belief is such as ceases with consciousness, whereas Englishmen in general mean by belief something that would remain the same even if they became unconscious. They mean *a thing*

believed, as well as the *mere act* of believing. They mean a true thought, as well as the mere trowing of it. They mean a self-existent, self-coherent truth. They mean something more than the confused and shallow drivel of advanced thinkers on the subject of belief.

(3.) *Some Knowledge exists. The Postulate.*—The confusion and mutual polemic of the warring systems of philosophy is, however, if possible, greater than when Kant described it as the warfare of shadows, like that of the Heroes of the Valhalla. Those who have succeeded as well as those who preceded Kant, hew each other in pieces only to be in a twinkling reunited, again to amuse themselves and the world which laughs at them in other equally fatal, but bloodless and indecisive contests. Nor is the absurdity lessened when a philosopher like Sir William Hamilton arises, full of learning and out-of-the-way reading, who undertakes to raise or ruin philosophical reputations by distributing the palms for originality in nonsense; or awarding the penalties due for the literary

"theft" of the like valuable philosophical commodity. He has resuscitated Reid and overwhelmed Professors Brown and Young by delivering them to the avengers of Philosophical "theft." He himself, along with his distinguished disciple Mansel, now awaits the hero, qualified by sufficient knowledge of mathematics, to enter the groves of Academus, and to enforce the rule of Plato, and condemn them to retire, and carry their philosophy of "the unconditioned" to those who are wholly ignorant of the mathematics of the infinite.[1] Originality is great, but Truth

[1] *Vide Hamilton's Lect. by Mansel and Veitch,* vol. ii, *Appendix*, p. 527, for "list of contradictions proving the psychological theory of the conditioned," which betrays complete ignorance of the mathematics of infinites. It is there assumed as self-evident what every mathematician knows to be false, viz., that "nothing can be greater than infinite:" that "one infinity cannot be larger than another;" that "an infinite number of quantities cannot make a finite quantity;" that "an infinite series of successive protensions can never be ended;" and so on: in short, it is clear, according to such reasoning, that Zeno, the ancient philosopher or sophist, was right, and that the greyhound can never overtake the hare, and Achilles could never overtake the tortoise! Plato, informed of modern mathematics, would certainly have rusticated for a term Sir William and his disciple till they had studied mathematics more deeply. Mr. Mansel adopts his master's ignorance of mathematics, and speaks of "the absurdity of a greater than an infinite."—*Bampton*

is greater. We do not much want originality on subjects on which we can learn probably as much, or even more, from Plato and Aristotle, than we can from most of their successors. We want a Postulate indeed, and accurate reasoning thereon, for we want Truth. We want a point from which we may move the world of ignorance and folly. But our demand, our Postulate, must be something which everybody believes, and which nobody can deny who takes the trouble to reason at all. It must be self-evident to every one, or it cannot be a universal postulate.

We all believe, we all assume in the mere act of reasoning, that *something exists*; something worth our trouble to discover, either to establish or to refute. That something, that

Lect., *Note* 11, *Lect.* iii., *and Note* 32 *to Lect.* ii. If these philosopers had ever read Newton's "Principia," even as far as Lemma XI., they would have found a series of infinites demonstrated each infinitely greater than the preceding one. But this is evident also from common arithmetic, for in the two infinite series 1, 2, 3, 4, to ∞ and 1, 4, 9, 16, to ∞, the second infinite is the square of the first, and therefore infinitely greater than the first infinite, and there is no kind of absurdity in supposing one infinite time infinitely less than another infinite time. It depends entirely on how the time passes.

Unknown Something, for the present, we must call *knowledge*, worth man's while to search for by reason, whether it turn out in the end to be positive Truth, or an equally positive certainty, the certainty of nothing. We therefore only demand what all assume, and none can deny, that *some knowledge exists*. That shall be our only postulate, and none can refuse to grant it. *Knowledge* does exist, and must be sought for in the spirit of truth, with humility.

CHAPTER I.

NUMBERS.

(1.) *Some human knowledge exists.*—*Minds, Things, Words.* Those who dare to deny the existence of knowledge, contradict themselves; for they assert their knowledge that no knowledge exists; which is absurd and self-contradictory. Therefore, we only assume what every rational being who speaks must grant. The Pyrrhonist must hold his tongue, or contradict himself in each assertion of his doubt.

Not only, however, in answering cavillers and sceptics, whether on philosophy, science, or matter of opinion, but even, also, for the satisfaction of our own minds on those sub-

jects on which we believe our opinions to be most fixed, it is desirable sometimes to test the accuracy of our thoughts by tracing them to their very first and fundamental elements, and, if possible, to demonstrate that all our knowledge hangs by links, none of which can be broken, from some truth which cannot be denied, except, indeed, by those who are not ashamed to contradict themselves, or to maintain the greatest of all absurdities, that contradictory propositions may both be true. With such we cannot argue; we can only reason with the reasonable. Now, the very meaning of a postulate or fundamental principle is, that it is such as no reasonable being can deny. To call a complicated proposition, involving five or six terms of philosophy or science doubtful in their meanings, a *postulate*, is a burlesque upon science, and a contradiction in terms, worthy only of men whose thoughts are altogether in confusion! We have therefore been careful to assume nothing which any rational being can deny. For the attempt to reason at all, or to seek for truth by discussion, assumes not only the possi-

bility, but the fact, the full belief of knowledge existing amongst mankind, even though it may turn out to be the knowledge that nothing can be known, a blank negation.

The existence of knowledge, therefore, being admitted, three things, of necessity, follow.

1st. That a thing able to know exists, or a mind.

2nd. That a thing fit to be known exists, or a thing.

3rd. That a word to express the knowledge exists, or a word or sign.

Men cannot possibly have any knowledge whatever without the existence of minds, words, and things, to be known; or assuming the fewest possible existences, according to what is called the law of parcimony, the existence of knowledge entitles us to assume the existence of three things as necessarily proved thereby, which things, for the present, we call a *mind*, a *thing*, and a *word*.

These three things, observe, are not parts of knowledge, but *factors* of knowledge. The mind, the thing, or the word, are not parts,

but in some manner mutually act and react, and are complicated together, so as to compound or make up what we all call knowledge. They are *factors*, not parts. This is the true and scientific name for them, as we shall hereafter prove more strictly, *post* Chapter IV.

(2.) *Three classes of objectors.*—There are three classes of objectors to this truth.

1st. The dogmatical materialist, who says knowledge implies only one thing besides words, viz., *matter*, which knows itself, and the residue of matter with or without certainty.

2nd. The dogmatical idealist, who also says knowledge implies only one thing besides words, viz., *mind*, and that the world is a mental illusion permitted by the One first Mind to educate other minds.

3rd. The ordinary antithesis, or *object* + *subject* philosophers, who have no very fixed opinions about words, or the part they take in knowledge and philosophy. Their language sometimes admits and sometimes denies the truth we are asserting, viz., that know-

ledge is necessarily composed of three factors. They are confused and confusing, and the result of their philosophy is never-ending verbal warfare. Great and good men many of them are, and often dimly perceive the truth; but so far as my limited reading extends, never hold the truth clear and fast; that a word is a *necessary*, and not a mere casual or accidental *factor* in knowledge.

The first of these three classes of objectors, the materialist, ends in atheism; the second, the idealist, ends in pantheism; and the third class ends in confusion and logomachy. We shall consider them all in the next chapter.

(3.) *The construction of Numbers.*—But to proceed with the construction of truth on this subject: I say, that the first and fundamental law of all science, or accurate knowledge, is what cavillers and sceptics will most readily admit, for they generally boast of the rule as if it was their exclusive possession, viz., not to admit more than is necessary, *i. e.*, not to admit that things are different until their difference is demonstrated and clearly shown. The second rule is, to admit our

fellow men, with whom we reason, to make and use such words and signs, distinct and separate, as will best explain their meanings.

Our first step, therefore, with the three things proved to exist by means of our first postulate, must be to assume signs exactly alike for all three. We do not know, or are not agreed upon, the difference between minds, things, and words, or between a mind, a thing, and a word. We assume ourselves ignorant to satisfy all sceptics, or to satisfy our own minds, that we are reasoning accurately; and we set down the three things thus, and give them like names or signs:—

1 = mind = one

1 + 1 = mind + thing = two

1 + 1 + 1 = mind + thing + word = three

Thus using the ordinary signs of unity, equality, and addition, as being clearer and shorter than the words they express. But in this proceeding we are only selecting new and clearer signs and symbols, or words for the three things already deduced from our first postulate. If the reader pleases so to call it,

we are merely spinning new words and new signs. Having deduced the existence of three distinct things, of which, or of whose nature, except their separate distinctness, we know nothing, we have called them by the same name, viz., *units*, and assumed signs exactly alike for them all, and have given the name of *one* to the first; of *two* to the first and second; and of *three* to the whole. But having commenced in this way by one, two, three, spinning or adding like words or signs called units, we can go on with the same process for ever, giving a new name on the addition of every new unit, and to distinguish all these words thus, meaning sums of like signs or units, we call them

NUMBERS.

If the reader has ever mystified his mind, or puzzled his brain about abstraction, or universal and general terms, we trust that we are gradually dispelling all mystery by thus demonstrating, to eye and ear, that abstraction is not, as most philosophers suppose and allege, *subsequent* to knowledge, but that it

is, in fact, *previous* to knowledge. The true cause of abstraction is *ignorance*. Instead of the mind first perceiving and knowing a likeness, and then giving a general name, or universal term, to the *class* of like things, the truth more properly may be said to be, that it is the absence of accurate knowledge in the mind that causes man to use general terms. Being ignorant of their differences, or not clearly perceiving their differences, we call the things by the same name, and it is right and proper so to do. For it is the first step in science to admit our ignorance, and to assume things to be alike until their differences are demonstrated. And those things whose differences we cannot demonstrate, we call by the same name.

(4.) *Unity, Equality, Addition, Cavilling.*—Perhaps some caviller may still be found to say, What right have you to assume that you can add one to one to make two, or one to two to make three? what is this unity, addition, and equality which you thus assume quietly without their being granted? But the plain answer to this, if the reader has the

patience to read it, is, that I am not assuming anything but the right to speak and write with accuracy or scientific precision. I am only doing what the caviller is himself doing, adding word to word, and sign to sign, to express my meaning. I *make* my units equal, and as I build up my equal signs and words, to prevent mistake hereafter, I give a new name to each bundle of words at every stage. I begin with a word, a sign, a *unit*, and go on making and adding like equal units, giving a new name on the addition of each unit; and as to the likeness, it is not anything abstract, but the very simple and concrete effort made by the mouth, pen, or printers' ink, of poor ignorant human nature not yet capable of "advanced thinking," and not yet possessed of the advanced logic and philosophy at present rampant in Westminster. No man can deny us the right to make signs as like as possible, or to give a new name to each bundle.

Having, however, possessed ourselves, thanks be to God, of a firm belief in *One Unit* in the beginning, we have thence strictly deduced by means of our reason *three units* as

its *necessary* component *factors*, not parts, but complicators or factors. Of each of which, and its nature in our present stage of humility, we confess ourselves wholly ignorant. But having made and got three from two by adding one, we get four from three in the same way, and so construct our *numbers*, on the binary quinary decimal, duodecimal, or any other system, until our paper or patience is ended, and the whole of symbolic arithmetic stands developed before us. For this, we beg to refer the philosophic reader to any intelligent writer on arithmetic. We thus have got a volume full of *like words* or like signs; *numbers*, in which the likeness is not abstract but concrete, being as great a likeness as paper and printers' ink can produce in two units; whose actual *differences*, if any, we abstract and disregard, not by knowledge and philosophy, but by ignorance, *i.e.*, only because we cannot see, perceive, or demonstrate their differences.

(5.) *Mr. Mill, and Numbers in the Abstract.* —Plain, disgustingly plain and trite, as all this must appear to any brain not addled by

modern concrete materialistic philosophy, nevertheless a great logician, one to whom all the other advanced thinkers at Westminster bow the head with reverence (and we also, let us say, reverence honest intellect, however much in error), denies altogether what seems to us so very clear and manifest. He admits the existence of knowledge, he admits the existence of minds, things, and words; but he denies the existence of numbers in the abstract. Under an apparent candour, and too great readiness to admit what a logician should prove, he seems to us to conceal a lurking confusion of thought which tends to confound all knowledge, and to render truth itself dubious. He has not made up his own mind, and therefore, as we intend to show, contradicts himself on the question, whether a true "conception present in our intellect," is or is not a thing, an existing thing, an existence. He says, evidently in doubt, "There seems a kind of contradiction in using such an expression as that *one thing* is merely an *attribute* of another thing."[1] This seeming

[1] Mill's "Logic," i., p. 51, 4th Edition.

contradiction, to Mr. Mill's mind, is turned into actual contradiction when he comes to consider numbers, lines, surfaces, &c. As to numbers, he says, "All numbers must be numbers of something; *there can be no such thing as numbers in the abstract.* Ten must mean ten bodies, or ten sounds, or ten beatings of the pulse."[1] We are not told why *ten* should not mean what everybody knows it means, *ten units*; and beyond this mere assertion, and the analogy of arithmetic to geometry, which I will afterwards consider, no proof is given of this doctrine, and the author's whole work is a disproof of it, for it is full of similar abstractions justly called things. Can there be an abstract body, or an abstract man, or an abstract lord mayor? is Mr. Mill Martinus Scribblerus, or himself? "Laws," "causes," "attributes," "qualities," "relations," "successions," "sequences," and many other abstractions, are freely dealt with and insisted on as "things themselves" in Mr. Mill's own work; but numbers and geometrical abstractions, mathematical lines, figures, surfaces, are dismissed to the region of nonentities. Mr. Mill's phi-

[1] "Logic," vol. i., p. 283.

losophy tends to prove that *law* and *cause* are identical. Suppose we dealt with him as he deals with mathematicians, and said, What are laws? "All laws must be laws about something: there can be no such thing as laws in the abstract." What is a law in the abstract? Nothing. What then is a law in the concrete? Oh! it is a rule laid down by a superior, or any other definition you please. Well, and a number in the concrete, *if you please to call it so*, is a bundle of units, marks, or words, or signs calculated by an arithmetician. Why one should be an existence, and the other not, in Mr. Mill's philosophy and logic, passes all understanding, and certainly Mr. Mill has not explained. He says that geometrical abstractions as defined by geometers are "wholly inconceivable,"[1] and are therefore nothings. On other occasions he is severe on philosophers in general, and on Isaac Newton and Dr. Whewell in particular, for presuming to argue from inconceivability, but in order to abolish mathematical abstractions, it seems to be a

[1] "Logic," vol. i., p. 254.

mode of logic not altogether objectionable to Mr. Mill.

(6.) *Abstraction, Induction, Causation, Numbers, &c.*—But let us hear what he says about Abstraction. Abstraction "is the foundation of all the control we can exercise over the operations of our own minds; the power, when a *perception* is present to our senses, or a *conception* to our intellects, of attending to a part only of that perception or conception, instead of the whole."[1] But what is the result of this *power?* what is the effect of this *operation?* Has it no result or no effect? Can a power operate and end in producing nothing? Why may not I, if I have a perception or conception of a mind, a thing, and a word, operate by this mental power and abstract all their known or unknown differences, and attend only to their individual distinctness or *unity*, and call them three units, or *three?* The word *three* is a very good and clear abstract term; it is a number in the abstract, a general name, a universal word, meaning all the units in three;

[1] "Logic," vol. i., p. 283.

just as man, or mankind, means all the units of mankind, by abstracting all their individual differences. To be sure, Mr. Mill tells us that proper names, or general terms, have, "strictly speaking, no signification."[1] When, for example, however, Mr. Mill says, "men read the sacred books of their religion,"[2] &c., does he mean nothing by the abstract term "men"? has his word, in strictness, *no signification?* He does not tell us the difference between *strict* speaking and other speaking, or how to know when he is speaking strictly, and when not. Of course we cannot divine when Mr. Mill's words—his *general terms*—have some signification, and when, "strictly speaking," not. All his words are general terms; he does not speak with singulars, but with universals, like the rest of the world. We cannot make a sentence out of singulars, for we must always, at least, have the *copula*, in the sense of existence or equality, as in, John is not Harry; or, this is Tom. But when writing a logical work we think the author should always, as far as

[1] "Logic," vol. i., p. 36. [2] Ib., vol. ii., p. 339.

possible, speak strictly. But in logic we cannot permit a writer to shift his ground between strict speaking and other speaking, especially one who says his words shall always be the names of "*things themselves*."[1]

In short, Mr. Mill's denial of the truth and existence of mathematical abstractions, is a mere logical shuffle about *abstract words*, which Mr. Mill makes to mean "things themselves" when he chooses, and when he prefers another way of looking at them, he makes them to have "strictly speaking, no signification"! But Mr. Mill's bad logic on this subject may be shown, in due form, by another consideration, viz., that he himself derives the certainty of numbers from the certainty of "induction *per enumerationem simplicem*." "The principles of numbers," he says, "are duly and satisfactorily proved by that method alone, nor are they susceptible of any other proof."[2] But what is *enumeration*, but numbers? The simplest kind of induction requires, therefore, numbers, *i. e.*, *enumeration*; so the proof of numbers is by

[1] "Logic," vol. i., p. 24.

[2] Ib., vol. ii., p. 99.

induction, which previously supposes enumeration! or numbers! Our certainty in numbers is our certainty by enumeration!

A philosopher must certainly have arrived at his wit's end when he is reduced to such logic as this, and when, also, to support his system he is reduced to make the truth and certainty of the propositions, 1 = 1, or 1 + 1 = 2, depend upon what he is obliged to call "the loose and uncertain mode of induction *per enumerationem simplicem*," and upon what he calls "the uniformity in the *succession* of events, otherwise called the law of Causation"! Mr. Mill *assumes* these two principles, viz., induction and causation, as fundamental truths, self evident, and hangs thereon the truths that 1 = 1 and 1 + 1 = 2! just as if enumeration and succession did not already imply numbers, as true conceptions existing in the mind previous to any induction whatever, and previous to any thought of law or succession whatever. Are we to call this glaring *petitio principii* logic? Can absurdity reach a more sublime height than to make a chain stronger than its weakest link, or to

make "the scientific ultimately rest upon the unscientific"?[1] The force of logical folly can no further go, and so the author stands pre-eminent, the *facile princeps* of all "advanced thinkers" in England. Is the advance forwards or backwards?

It is, therefore, we say, simply absurd and self-contradictory to make numbers, or the truth of numbers, depend on induction and causation, because induction previously implies and supposes numbers, *i.e.*, *enumeration*; and causation also previously implies numbers, or *succession*, at least two. Induction and causation may be partially founded on numbers, but not numbers on induction or causation; numbers must be *first*, induction and causation may follow after.

(7.) *Geometrical Abstractions, Lines, Surfaces.*—But the reader has had probably more than enough about numbers. What shall we say about points, lines, and surfaces, "as defined by geometers," "wholly inconceivable" to Mr. Mill? Here he revels in all the glories

[1] "Logic," vol. ii., p. 102.

of concrete or materialistic thinking, as now prevalent at Westminster.

We, of course, say that the abstract conceptions of geometers are true facts, *things* actually existing in nature, so far as the human mind can judge of external things. Here, as before, Mr. Mill begins at the wrong end of the stick and sticks there. He says, "our idea of a point is simply our idea of a *minimum visibile*." But geometers, when challenged about their abstractions, as they have been by self-puzzled logicians for 2,000 years, begin at the other end, viz., the *impenetrability of matter*. Mr. Mill himself admits this as a concrete fact, very sensible as far as our senses carry us; we cannot possibly get beyond the surface of external matter. A geometer who knows his business begins with a surface.[1] What is a surface? has it any thickness, or none? Man arrives at a surface and can feel it and see it, but he never yet felt the thickness of a surface; even in liquids and gases—those things that have an unplea-

[1] *Vide* note to "Elrington's Euclid," which is, or was, the text book in Dublin, and the references there.

sant resemblance to what *un*advanced thinkers call pure mind or *spirit*, and which penetrate organised bodies with great facility and freedom, and which seem to penetrate us, though we cannot penetrate their surfaces.

We say, therefore, that man is for ever stopped at the surface of matter by his senses. Though one sense, the sense of sight, can see through the surface of transparent and lustrous bodies, yet man cannot see the *thickness* of the surface. Light can get beyond the surface, but man cannot. Here, then, is a matter of fact, a phenomenon of concrete sense, a concrete fix sufficient to hold Mr. Mill and his followers, for ever. If they ever touched any surface but surface without thickness, we wish they would show geometers how to do it, for no man that we know of ever did so before. Mr. Mill must, therefore, either believe his senses, as geometers do, and have done from the days of Pythagoras downwards, at least, and must say that surface has no thickness; or, in short, he must disbelieve his inconceivability! Having once got a surface without thickness, we have for its boundary,

of course, a line necessarily being length without breadth; and a point, the boundary of a line, necessarily without parts or dimensions of any kind. Either, therefore, Mr. Mill must hold to his doctrine and disbelieve his senses, or condescend to conceive points, lines, and surfaces, as all well instructed geometers have done for two thousand years and more. Rather humiliating, no doubt, to think with Plato and Newton; almost as bad as believing, like Newton, in what Mr. Herbert Spencer calls "the Hebrew myth"! Mr. Mill, indeed, who seems thoroughly honest, although I take leave to say thoroughly word-puzzled and self-contradictory on this subject, seems himself to have felt a little of the absurdity of his philosophy when he was asked whether his concrete thick surface had an *inside* as well as an *outside!* But like all worshippers of idols, having manufactured his idol—viz., *certainty or truth by induction*—he prefers to swallow the absurdity rather than to give up his creed. Mr. Mill, indeed, has said that a condition is implied in all propositions concerning numbers, viz., that 1=1,

which of course is true, but I have demonstrated that this condition is not imposed as a condition of knowledge or truth, but is the condition of ignorance, *à priori*; the condition is performed in the act of perception, we make the equality. When ignorant of the nature of things, the mind, perceiving things to be two and not one, is bound to treat them as altogether alike and altogether equal; for it knows no difference until their difference and inequality are demonstrated, and this by the first and fundamental law both of science and of scepticism, viz., to assume as little as possible, and nothing that is not provable from the first assumption.

(8.) *Numbers the foundation of all accurate knowledge.*—Thus, however, we have demonstrated that *numbers* are necessarily, *i. e.*, *never-ceasingly*, given to man from and in his first cognition, and so are the beginning and foundation of all scientific truth, *i. e.*, all accurate knowledge of the world within and of the world without.

The reader will therefore perceive that we have turned the weapons of scepticism against

itself. Instead of setting about with learned words and phrases, and the process called abstraction, to establish a *likeness* called *unity*, we have been led to begin at the true beginning, the existence of one thing, Knowledge; thence we have deduced the *necessary* existence of three things; *factors* in that one thing, and not parts of it; and by the rule of scepticism and of science, not to admit or assume things to be different until they are clearly shown to be so, we obtained *three equal units*, the factors of the *first unit*, and thence have deduced all the truths of symbolic arithmetic in the ordinary manner.

We now, therefore, proceed to consider very shortly the three classes of objectors or dissentients to this view of human knowledge, viz., those who think human knowledge is compounded of *two factors*, or parts, viz., subject + object, or the antithesis philosophers; and secondly, those who think it compounded of *one thing* alone, either matter or mind; viz., the materialist and the dogmatical idealist respectively.

With respect to the object + subject phi-

losophers generally, we do not consider that they in substance dispute our first deduction of *three factors* in knowledge, for they all of course *practically* admit that words have something to do in the composition of knowledge. It is only their *verbal* looseness and uncertainty that we have to remark upon, that verbal uncertainty which it is our object to try and permanently remove. Science, philosophy, or knowledge, *without words* or symbols, would be the play of Hamlet with the part of Hamlet left out;[1] but what part words play or take in philosophy, is, without question, the great fundamental difficulty which all who think have to encounter in the science of truth or in the pursuits of philosophy.

[1] *Vide* Professor Ferrier's ably reasoned "Institutes of Metaphysic," summing up the object + subject theory of knowledge, or epistemology, leaving out words altogether as factors in knowledge, but in other respects containing a very able summary of the antithesis philosophy. Kant also wholly neglects words in his great work. It may be observed, that I deny the distinction between denotatives and connotatives, or attributives, as maintained by Mill and Whately as wholly illogical. Not even a proper name singular is a mere mark like *x*, an unknown quantity in Algebra. It is never spoken without some *idea* or thought in the mind connected to the name. Such words as Socratic or Platonic prove this.

CHAPTER II.

THE THREE CLASSES OF OBJECTORS.—THE INTELLECTUAL UNITY IN TRINITY.

(1.) *The Antithesis or Subject + object Scheme of Philosophy.*—It is very worthy of observation, by all who feel an interest in the human mind, or in arriving at truth and certainty, that if, in the course of the reasoning which I have developed in the last chapter, we had commenced with assuming at first two existences or distinct things only; or if we could hold the opinion that human knowledge necessarily implies only two things—say subject and object, or *ego* and *non ego*—we should have at once fallen into a dubiety or uncertainty in the deduction of Numbers,

quite independent of materialism or dogmatic idealism. For if we only had had one, two, as the foundation of numbers, instead of one, two, three, in our first conception, we could not feel quite sure what the next most simple or most natural step should be, for there would be two steps equally natural. Two is formed by adding one to one; and the next like step might, therefore, have been two to two, and so on, making each new number by adding the former number to itself. We should, therefore, have remained uncertain or dubious, between what are called the natural numbers, 1, 2, 3, 4, &c., and the series, 1, 2, 4, 8, &c. Both of these might have been said to be equally natural. But having assumed only one unit in the beginning, if three units are given in our first cognition, or conception of knowledge, the mind cannot jump from three to three times three; and is, as it were, compelled to recognise the individual *unity* of the three factors, and to discuss their combinations and to proceed by the steps of one, two, three, to the *natural* series of numbers, adding unit

after unit, in place of adding units or things to themselves.

The same dubiety and uncertainty which I have illustrated by the two series, 1, 2, 3, &c., and 1, 2, 4, &c., seems to me to result from all attempts to reduce human knowledge or philosophy to an antithesis—in short, to a couple; thoughts and things, *ego* and *non ego*, subject and object, facts and theories, and so forth; from which antithesis, as I conceive, no kind of certainty can result. I say, therefore, with great respect for many of these great philosophers and learned men, that the foundation is insecure and uncertain, and involves all philosophical questions in its own dubiety. It compels them to endeavour to sustain their system by new assumptions, forms of thought, intuitions, necessary conceptions — such as Space, and Time, and Cause, &c.—which enable any bold sceptic to blow the whole fabric to pieces, by refusing to admit all or some of these assumptions: and, for example, to declare Space to be nothing, and Infinite Space a mere superstition! a bad habit of thought, as Mr. Mill seems to call it!

2. *Words, not ideas, factors in knowledge.* —We are seeking for truth and certainty, and I admit that it is a fundamental question whether our first cognition—the first "conception present to the intellect"—by whatever name we call it, is necessarily composed of one, two, or three things, or existences. I say three—*subject*, *object*, and what I might have called *connect* or *traject*, or *idea*, but that I prefer the plain English of mind, thing, and word. I call the third factor a *word* rather than an *idea*, &c., because we do always give it a name when we try to speak accurately to our neighbour. That *word* always expresses what Kant says "begins by being sensuous and ends by being intellectual." I call it a word also, because it at once relieves us from all that intolerable logomachy and jargon which has gone on from the time of Plato, about ideas, impressions, sensations, perceptions, conceptions, reflexions, representations, intuitions, &c.; every age, in vain, trying to fix what never can be fixed—viz., the identity of A's sensation and reflexion with B's sensation and reflexion, the sameness of A's idea

with B's idea. They are different, and will remain different to the end of time; and it is utterly idle to ignore the truth, which I shall more fully consider in the next chapter, that man's agreement in knowledge can only be an agreement in WORDS. Without going further into this question at present, I merely say that *a word* is one necessary factor in human knowledge; for even if I admit that A may have knowledge without a word, A and B, and all the rest of mankind, cannot have the same knowledge without *a word* to express, and teach, and learn it by. It is, therefore, a factor in knowledge, even if not a factor in A's knowledge; though I should be inclined to deny that any man in the body can have any true idea or true knowledge without some word, sign, or other symbol to express it, though he alone understands it, and possibly cannot make any intelligible sign or word to convey it to his brother man.[1] We shall have,

[1] St. Paul's vision will occur to the reader—II. Cor., xii., 2. —when he heard "unspeakable words not lawful for a man to utter," but whether in the body or out of the body he could not tell. Even here words were part of the vision. Of course every intelligible sign is a word. So we

however, to consider words and ideas much more fully hereafter.

(3.) *Fundamental Antithesis founded in Mistaken Intuitions.*—We say, therefore, that this fundamental antithesis, "philosophy," this "object and subject" scheme of human knowledge, is founded on a mistake, an omission, or neglect of the very important part played by words amongst mankind as *necessary factors* of knowledge. Kant, though also confused with his "Unity of the synthesis of the Manifold," which is a learned and roundabout name for the process of making *general terms*, was, in my opinion, nearer right than those of his followers who try to reduce philosophy distinctly to an antithesis of object + subject. Kant became confused, as I think, from not seeing distinctly that the *first* "manifold" requires to be three, and not more than three, in unity together. He became unable to deduce the ideas of space and time from anything, and, therefore, un-

call both Scripture and Jesus the Word of God; both signs: the One more than a sign, the other a mere sign or symbol of the Divine Spirit that dictated the words.—I. Cor., ii., 13.

scientifically assumed both as forms of thought, as fundamental intuitions; and his followers have improved upon this bad example, till they appear almost to assume anything they please to be a fundamental form of thought and intuition; and men possessed of reasoning faculties turn away in disgust or contempt, or blow their assumptions to the winds, by denying the whole with more or less plausibility.

On the subject of *number*, Kant contradicted himself by, in one passage making time generate number, and in another making number generate time. I give the passages below.[1] His system is overthrown as to space

[1] Kant says—Bohn's Translation, p. 110—"Number is nothing else than the unity of the synthesis of the manifold in a homogeneous intuition by means of my *generating* time itself in my apprehension of the intuition." Here time is said to be generated by number. But at page 28, he had previously laid down this principle: "Time is not an empirical conception; time is a necessary representation lying at the foundation of *all our intuitions*; time is given *à priori*." So time is at the foundation of number, and number at the foundation of time, and even generates it, or of two things both are first, which is a clear contradiction. So far as I know, the first above passage as to number, is the only one in his celebrated work attempting to explain number. The fact is, that number

and time being necessary forms of *all* our thoughts, by citing number as evidence to the contrary; for in what time or in what space does the thought of the number three necessarily exist? We intend to show hereafter that as numbers are given in our first cognition and by every sense, they are the measure or make-sure of all other things, and that as numbers are *like words*, made alike by man himself, so time is *like minds* in *succession*, *i.e.*, like thoughts enumerated by numbers; and spaces are *like bodies* negatively observed and the absence enumerated in time; and that minds, bodies, and words include all possible predicables. But we are anticipating, and we shall have to consider this object + subject, or antithesis scheme of philosophy more fully, when we come to consider what words really are.

(4.) *Materialist and Idealist Objectors.*—As no man who can rationally discuss the nature of human knowledge can deny the existence of the words he uses or abuses; or

is the simplest and first scientific cognition, and is given by every sense, for we can count touches, sights, sounds, tastes, and smells, and it is, therefore, the fit measure of all other things.

that they do in some necessary way go to form the human knowledge which he is endeavouring with his words to establish or refute, we might have assumed ourselves to agree with the object + subject philosophers for the purpose of the last chapter, though we do not express ourselves exactly alike; and might have then said that all objections to our system of conceiving knowledge as the product of three factors, mind, thing, and word, and thence deducing Numbers, were reducible to two: first, the objection of the dogmatical materialist who denies the distinction between mind and matter, and reduces knowledge to some composition or operation of *matter and words*; and, second, that of the dogmatical idealist who denies the same distinction, and reduces knowledge to a composition or operation of *mind and words*.

I do in substance agree with all those unanswerable reasonings by which Kant and his followers have established what I think the true view of Hume and Berkeley's doctrine; that which preserves the distinction of subject and object, and yet asserts that things *in themselves*

can never be known; *i.e.*, can form no *part* of human knowledge. But the pure idealist, and the pure materialist, both strike one of our factors out of the conception of knowledge, by dogmatically denying the separate existence or nature of either matter or mind respectively, and equally neglect the third factor, words.

The Materialist Objection.—Both these objectors admit that *something thinks*. Now, when a materialist asserts that *matter thinks*, it seems to me the silliest thing in the world to say the contrary; for as neither party really knows anything of matter *in itself*, it is as absurd for the one to dogmatically deny, as for the other to dogmatically assert, that matter can think. The only proper way to meet any one in error, is to come to some convention or agreement as to the words to be used for the purpose of the discussion. "There is no magic in the word" *matter*; and the materialist, for the purpose of our discussion in the last chapter, should be answered by saying, "By all means, sir! let us agree that in our discussion *the thinking*

thing shall be called *matter*; but what shall we call the *non*-thinking thing?" If he is so foolish as to say openly, I want to call it matter too, the answer is clear, that he cannot be permitted to call a thing and its contrary by the same name in the same discussion. "A" and "not A," cannot in the same discourse be called B, for of course any one could prove or disprove anything in that manner; we could prove that A is sometimes itself and sometimes not itself. If he will leave the word matter out altogether, and consent to always use the words *thinking thing*, and *non-thinking thing*, that answers the purpose of the argument in the last chapter, and gives us three distinct things in our first cognition, viz., the thinking thing, the non-thinking thing, and the word. And the materialist must do this, or shift into the dogmatical idealist, and say everything thinks; and that there is no different name to be necessarily given to the mind of man and to a stone; that they are fundamentally and originally one and the same *thinking* thing. Thus, however, the materialist is com-

pelled to admit our first deduction, that the existence of any knowledge presupposes and admits the existence of three distinct things, factors in knowledge—which for the present, and for the purposes of this discussion, I have called, like Englishmen in general, minds, things, and words, the three necessary component factors of all knowledge.

(5.) *The Idealist Objection the same in Substance as the Materialist.*—The dogmatical idealist is, *for the purpose* of the discussion in the last chapter, also met in the same way.

In fact and truth, the objection is one and the same, for both materialist and dogmatical idealist assert the identity of the thinking and non-thinking things, and so contradict themselves. But when the dogmatical idealist denies the existence of the *non*-thinking thing altogether, that contradicts the first admission, the existence of knowledge, which does not itself think. And if he says knowledge is words, he is then justly compellable to give us distinct names to the words that are *knowledge*, and to the words that are *not knowledge*, and we have mind, truth, and word; or mind,

illusion, and word; or mind, thought, and word: from which three words or things we can still construct our *numbers*, and our whole numerical system, according to the reasoning in the last chapter, and arrive at exactly the same conclusions, to which, therefore, every dogmatic idealist must agree and submit, or be guilty of self-contradiction. In fact and truth, materialism and pure or dogmatic idealism are not properly distinguishable from one another, and their professors generally aid themselves when in any difficulty by shifting their ground from one to the other, from Pantheism to Panatheism, and back again; but neither of them can, without self-contradiction, deny our reasoning in the last chapter, by which, from the existence of knowledge, we have deduced three distinct things in our first cognition, and thence have arrived at Numbers, and at all the truths of symbolic arithmetic; not by abstraction or *induction*, but from and out of our admitted ignorance, by *deduction* from our first postulate or axiom, which is self-evident.

Wherefore we have laid a firm beginning

and foundation for all our scientific and accurate knowledge in *numbers* of units, or signs made by man as exactly alike as possible, and duly and systematically registered in bundles by giving separate names or *words* to each bundle.

(6.) *The Stand-point arrived at, Numbers.*—We are not now discussing materialism or dogmatic idealism, or their rationality; but the materialist and idealist cannot deny our reasoning in the last chapter without contradicting themselves. We have thus reached a very remarkable stand point; having demonstrated, as we trust, beyond cavil, by any sect of philosophers, or any rational being whatever, that if we suppose and admit, as every man must do who reasons, the existence of some knowledge, we can thence *deduce à priori* all the truths of numbers, and all the truths of symbolic arithmetic, or, in short, all the accurate knowledge, *i. e., the whole science of equal units*, being numbers of *like words*, or like symbols.

We have arrived at our equal units, not by abstraction of knowledge, or by perception of

likeness; but in the way all human knowledge and all human truth has been synthetically built up, viz., by *making* and assuming like symbols, like words, like marks, for things distinct, but of whose likeness in themselves, or sameness, or difference in themselves, we are, or assumed ourselves, for the sake of argument, to be, wholly ignorant. These like marks we make, and we call them units; we tie them in bundles with a name to each—a general word to know it again: each word, each *number*, meaning *all the units*, tied up in the bundle. The truth and certainty of the process depends not on induction, but on deduction. We deduce twenty and give it a name, because we have already arrived at nineteen. Every step is deduced from the last. But having arrived *by deduction* at this stand point even at a volume of symbolic truths, of the truths of arithmetic, truths acknowledged by all intelligent men as actual truths, the time has come when it may be asked, is there anything *real* in what we have been doing? We have a volume of words, of signs, of symbols, and their rela-

tions, but have they any signification, any meaning, any application to anything but themselves, the mutual utterances, the mutual and conventional signs which men make to one another?

Realism, idealism, nominalism, the tattered banners of philosophic systems, are thus forced on our attention. But before we venture upon such a stormy sea of human words, let us try to draw some one certain practical conclusion from our first conception of knowledge; a conclusion which, in our opinion, concerns every human being, be he peasant or be he philosopher, who is seeking for truth. The truth is great, and shall prevail.

(7.) *Trinity in Unity, the first Manifold.* —We started with the assumption of one *unknown* existence called *knowledge*, the nature and truth of which we all were to try and discover by means of our intellect and reason. We have shown that the nature and constitution of man's mind is such, that the very first rational step forces, as it were, *à priori*, by deduction into the human mind, that this unknown existence which we are in search of

cannot be thought of or conceived without self-contradiction, except as a compound of *three factors*; not parts, but *factors* of the knowledge we are searching for. These three distinct thoughts, or things, or words, whatever we please to call them, are not added together in our first conception of knowledge, but are independent *factors*, complicating, composing, or compounding the one thought or thing, knowledge, in the mind. It was not the mere *addition* of mind, thing, and word, as three things, that compounded knowledge in our first conception. Our addition or enumeration has been a wholly subsequent operation to our first conception of the *three*. It was some necessary active inter-connection, some mutual combination, or action and reaction together of three distinct things, units, as we called them, that compounded our first unit or cognition, *i. e.*, our conception of Knowledge. So long as we are, and remain, ignorant of the true nature of these three distinct things which we called a mind, a thing, and a word, we could only properly take and assume the same *symbol* for each *one*.

We called that symbol, unity, and being wholly ignorant of the nature of the original-existence, as well as of the three component factors thereof, except only that the mind of man forces him to recognise them as three and as distinct, the very first form of human knowledge is necessarily the logical and mathematical truth,

UNITY *into* UNITY *into* UNITY=UNITY.

This is the first possible true conception which the human mind can make of KNOWLEDGE; as a *unity* of *three* distinct *unities*. In Kantian phraseology, it is "the unity of the synthesis of a threefold;" and the first manifold that the mind can conceive, or build up together, is the *threefold* in the first cognition. This *form* of thought is not assumed, but proved. No one who speaks can deny it to us without self-contradiction in words, and that we have proved in the preceding discussion. This is the first *form*, therefore, which any knowledge assumes in the human mind, beginning at the true and only beginning, of supposing man wholly ignorant, and on the assumption that some knowledge exists for

the human mind to discover and contemplate, in order to satisfy the restless craving of the human intellect.

The intellectual law or constitution of the human mind, therefore, requires, *of necessity* —*i.e.*, never-ceasingly—as the very origin and fundamental principle, at once appreciable by the ignorant and by the wise, the admission of this truth, a logical Unity in Trinity, a Trinity in Unity, as its first step to truth. It is not that no other is conceivable, but that any other conception is self-contradictory in words. The dogmatical materialist and dogmatical idealist both profess to conceive a form of knowledge compounded of two, and not three, factors; but we have shown that they must contradict themselves in stating their conception. This is that logical, that verbal, Trinity which has been dimly seen by many great philosophers from Plato downwards. The admission of this truth is thus demonstrated intellectually; as the first step, the very first condition, the first necessary deduction implied in the admission of any knowledge whatever. Let self-puzzled or

word-puzzled philosophers dwell on the fact that no knowledge can exist in the human mind without the admission of this fundamental truth, and that every intellect which denies it is self-contradictory. Men can always find an excuse for not believing what they do not love or like, but honest intellect will admit it as the first and last, the beginning and end, of human knowledge.

The pure intellectual conception and the pure *moral* conception of a Trinity in Unity are wholly different and incommensurable. I trust that I have been able to engrave this great intellectual truth more clearly and distinctly than hitherto on the human intellect of Englishmen; but it requires an Infinite Spirit to inscribe the true *moral* conception upon the fleshly tables of the human heart; that moral truth, that to the human mind the first Existence is, of necessity, a Trinity; the *Creator*, the *Redeemer*, the *Sanctifier*; the three coequal and coeternal units in the first unity; the Mind, the Spirit, and the Word of God—the true and only symbol of Divine love. It is, therefore, clear, and not

to be gainsayed, that if, as Theists, we admit the existence of one God—a God of self-knowledge—that being is a Unity in Trinity, a Trinity in Unity, according to the necessary constitution of man's mind, and any other human conception of a God of self-knowledge is self-contradictory.

When, therefore, a Jewish peasant, coming forward as a long-foretold and long-promised Messiah, publicly announced the doctrine "I and my *Father* are *one*," "He who hath seen me hath seen the Father," and "the Father shall give you another Comforter, even the Spirit of Truth; He dwelleth with you, and shall be in you; and ye shall know that I am in the Father, and ye in me, and I in you;" he revealed a truth which, incomprehensible as it may be to man's mind, and altogether above reason and not deducible thereby, is yet not only consistent with the highest reason, but any other human conception of the Deity ends in self-contradiction, and is inconsistent with the constitution of the human mind itself.

God is an *Object* of worship, a Creator and

Father; he is a *Subject*, or mind and spirit, combining with supporting or dwelling in all good minds; and he is the Divine *Word* or symbol, the highest human exemplar, possessing the Divine "Spirit without measure;" or, as the Church of Alexandria expressed it, "inferior to the Father as touching his manhood, and equal to the Father as touching his Godhead." The distinct personality of the Son and Holy Spirit is a marvellous revelation, but consistent with the highest reason. The Trinity is not three relations to mankind, but three persons in one Deity, three Relations to Himself. And if any man argues that such a conception of the Deity is a conception of three Gods, we answer that he is as logically absurd and inconsistent as if he argued that human self-knowledge is a conception of three men, and not, as we have shown it to be, a conception of one man existing in three necessary relations to himself—as an object, a subject, and the word or thought—the connection between them, without which a man, as a being of self-knowledge, cannot logically exist or be rationally conceived by

the human mind. Thus are the deepest truths of revelation, which a child can apply to his own self-improvement, consistent with the highest reason on which a man can exercise his intellect. Man has free choice and can refuse to believe, and may feel the pride of a fool in choosing wrong; but he cannot find any intellectual shelter or logical refuge which will bear the test of rational examination in denying this great revealed truth. Humility, however, goeth before true wisdom.

(8.) *Epistemology and Ontology inseparable.*—One clear result, also, from this discussion of the composition of existence or knowledge is this, that the human mind cannot separate and distinguish epistemology from ontology, or the science of knowing from the science of being. Our fundamental postulate, which all men must grant in the form we have laid it down, is, in fact and truth, equivalent to the postulate, "*God exists*," or The Great "I am" exists. This is as certain as our own existence. Every man, verbally, admits it, and contradicts himself when he denies it. In short, intellectual existence and knowledge,

in their *most abstract* sense, are one and the same thing.[1] Self-knowledge must involve *self*, and if all knowledge has three factors, the three factors of self-knowledge must be *personæ* of self, otherwise self would be not self. Epistemology and ontology, therefore, not only cannot be separated, but neither can be discussed alone intellectually or considered by itself

[1] Sir Wm. Hamilton blows an uncertain sound on this subject—the composition of knowledge. Compare these two passages: "Knowledge is a relation, and supposes *two terms*. There is the knowing mind—the thing known; and the knowledge is the relation between these two."—Lect. by Man., i., p. 195. But he has previously said, at p. 146, "What we know is not a simple relation apprehended between the object known and the subject knowing, but every knowledge is a *sum* made up of *several* elements." These two statements clash. They are reconciled by alleging and proving, as I have done, that knowledge is a *product* of *three factors*—mind, thing, and word. All knowledge implies, of necessity, these three, and no more than these three, factors. In short, a word is a necessary element in all knowledge. Knowledge is a Trinity in unity, intellectually combined. Professor Ferrier, in his "Institutes of Metaphysics," expressly leaves out words altogether, and says—"Object + subject is the absolute in cognition."—Prop. xxi. The wise and the ignorant receive the same stroke on the nerve. The former adopts a word to express it, and has knowledge which he can communicate; the latter has *no* word, and knowledge does not exist. *Ergo*, I affirm that object + subject is not the absolute in cognition. *The word* gives life to the cognition, and without the word it is dead. A word is the embodiment of the thought connecting object and subject.

alone. But the truth has hitherto been too much overlooked or neglected, that the *third factor* is necessary to self-knowledge. Self as an *object*, self as a *subject*, must have also self as a word or symbol of the knowledge; the mind, the spirit, and the symbol or word, which to a man expresses the connection between the subjective mind and the objective or spiritual self which it perceives. A man cannot be conscious of a thought, a feeling, or a principle, without he has some word, symbol, or sign to express it. The self-consciousness is in some way, we know not how, mixed up with the *word* which expresses the self-consciousness. This is the fundamental fact in all metaphysical truth, and it ought never to be forgotten or neglected. Words, symbols, or signs, are one factor in knowledge, are one factor in truth, and are *necessarily* so in the contemplation of the human mind. Men can compare their Words, but, except through their words, they are wholly unable to compare their Ideas. The existence of their ideas can only be proved and exhibited by the existence of their words.

CHAPTER III.

REALISM—IDEALISM—NOMINALISM.

(1.) *Mr. Herbert Spencer's Realism.*—If it had not been for Mr. Herbert Spencer's late book in English on Psychology, pretending to prove what he is pleased to term realism, I should have thought it idle, at the present day in England, to discuss further the question between realism and every phase of idealism. Mr. Mill, writing before Mr. Spencer's work appeared, says, "Berkeley's doctrine is in substance admitted—the idealists have established their case."

Whether it is just to attribute to Berkeley what Kant calls a dogmatical idealism, that is the positive assertion that *we know* that

matter, the *non*-thinking thing, *does not exist* at all, external to man's mind, is a question of persons, *i. e.*, of Berkeley's meaning, rather than of things. We may assert the defectiveness of a proof without asserting the contrary dogmatically; but how any author of ability, who can put words together on some subjects with clearness and accuracy, can profess to maintain pure realism, or man's knowledge of things *in themselves*, seems to me a marvel of mental confusion. But the marvel ceases when we find this same author dealing with the word "belief," and even when on his guard, and when his attention is directed to the subject, unable to divest his mind of the confusion of ordinary language, unable to distinguish clearly between the thing believing and the thing believed, and the belief itself in the mind, but actually to confound the existence of the thing believed—"*the sun*," for example—with the existence of the belief in his own mind.[1] Such lucubrations may be

1 *Vide* "Spencer's Psychology," p. 29, as to his belief in "the sun." Some of Mr. Spencer's writings are clear, useful, and practical; but his mind seems to me confused by

alleged to prove realism, but they cannot be replied to, for they have no meaning; they stand self-condemned by incoherency, in words open and manifest.

Belief is one thing, knowledge another; but if anything has been hitherto proved in metaphysics, it is, as Sir Wm. Hamilton says, that "external things *in themselves* cannot be *known*, and need not be known by man, because a thing is never presented to us otherwise than as a phenomenon," and that "phenomena are mere representations." The simple truth is this, that the more we know of nature the more does she withdraw herself, and the more mysterious and unknowable does the *real nature* of the external world become. As our knowledge of nature increases, so do the difficulties of realism increase with it. When we have resolved water into two gases by electricity, we have the multitude of his thoughts of concrete existences. When he comes to discuss fundamental abstract thoughts, the meanings of life, society, property, belief, truth, &c., evaporate altogether, or are quite inadmissible. Let me tender him my thanks, however, as an Englishman, for his "Essay on Over-Legislation;" though we differ on fundamental abstractions, we do agree in some practical matters.

three puzzles before us instead of one, the relations between each with the other two and with itself. If we could now discover methods of resolving all external things into six or seven instead of the sixty or seventy insoluble elements now known, we should be multiplying the complexity of the phenomena tenfold. It would require ten times the number of phenomena, each of which is an insoluble puzzle, to produce external nature with seven simples in place of seventy, and we should not be a whit nearer the reality of the matter.

Mr. Mill clearly perceives and well expresses this truth. "The result of this simplifying process is to trace up an ever greater variety of different effects to the same agents. The further we advance in this direction, the greater number of distinct properties we are forced to recognise in one and the same object."[1] In short, the greater our knowledge of external nature, the more complex, instead of the more simple, does nature herself become, in a realistic point of view.

[1] "Logic," ii., p. 108.

"All our knowledge begins with sense, proceeds thence to understanding, and ends with reason. Nothing higher can be discovered in the human mind," says Kant; and then he confesses himself "in some difficulty to give an explanation of this, the highest faculty of cognition." But one thing is made clear by his argument beyond rational dispute, that all the phenomena that affect our *senses*, and which pass thence to the *understanding*, and are dealt with by the *reason*, can only there receive a *mental* solution, an *ideal* simplicity, a *rational* and verbal explanation. "The reality of the objects which we perceive still remains a profound and apparently insoluble problem."[1] When men so much opposed in many of their views of philosophy as Mr. Mill and Dr. Whewell, agree in their view of what all preceding philosophy has done or left undone; where our own reason, as well as we can use it, confirms the result, it seems a waste of time to attempt to bolster up their conclusion, or to review and restate the arguments from Kant downwards, that

[1] Dr. Whewell, "Ph. of Disc.," p. 488.

have never been answered intelligibly, which show that things in themselves are unknowable.

When, therefore, Mr. Spencer says, "If it be alleged that we cannot *know* that things exist as we understand them to exist, because we cannot transcend consciousness, then there is at once taken for granted the validity of that test whose validity is called in question; the *universal* postulate is assumed and denied in the same breath."[1] We merely answer, no! your universal postulate is neither assumed nor denied, because it is unmeaning. You yourself have used in your so-called postulate the word "belief," either in two senses or in none at all, for you cannot or do not tell us in which sense of your two acknowledged senses you use it. But this word "belief" involves the whole question at issue, viz., the thing external to the mind, and the thing not external but within the mind. Therefore, you either contradict yourself, or are in a state of unmeaning confusion on the subject of *realistic belief and true knowledge.*

(2). *Idealism Contradicted by the Laws of*

[1] "Psychol.," p. 65.

Language.—Having disposed of dogmatic realism without argument on the authority of the reasons already adduced by Berkeley, Kant, and their followers, to prove man's ignorance of things *in themselves*, we assume it as already clearly proved, that all external things *in themselves* are unknowable; that "we know and can know nothing absolutely in itself."[1] In short, it is clear that man's body stands between his mind and external nature, an impassable barrier, rendering external things *in themselves* unknowable, and reducing the entire sphere of man's knowledge to the phenomena or appearances which are transmitted by the human senses to the human mind. Nevertheless, every language of every human race utterly contradicts this philosophic creed. Man is a universal realist in every nation under the sun; every tongue openly contradicts this philosophic conclusion, and every now and then we may therefore expect some word-puzzled philosophers to arise, who, confounded by the common words they are compelled to use in order to express

[1] Sir W. Hamilton, "Lect. IX.," vol. i., p. 85.

themselves intelligibly to their fellow men in ordinary language, will again and again attempt to prove that their "words do mean things *in themselves*," and will try to use the common convention or agreement of mankind to overturn a creed which ordinary language contradicts in every word. In spite of our philosophy, whenever we talk we are considered to be bound by the common convention or agreement of mankind, and that our word "*tree*," for example, means the external thing which, we say, we see and touch, and not that minute infinitesimal *pulsation* which passes along our optic or other nerves, into the grey cellular matter of the brain; *that something* which we can stop and annihilate in its passage by merely nicking the microscopic nerve; *that something* which must in some way exist in one or more of the myriads of the microscopic cells of which the grey cellular matter of the human brain visibly consists. Language is too powerful, its laws are too strong for us; the common agreement of mankind is felt too binding to be thrown off, for we cannot speak without submitting to it, and we

go on and cannot avoid going on speaking with our tongues, concerning the great external tree existing in nature, instead of concerning the minute microscopic cells or their contents actually existing in our several brains. But belief is one thing, and knowledge another, and language a third. The realist may be very right in his belief, but he is certainly wrong in his alleged knowledge and in reason. Although, therefore, we all practically subscribe to his belief, *i. e.*, to the ordinary creed of mankind that things exist external to man, as men generally suppose them to exist, we say, be not afraid of materialism from admitting clear fact and truth concerning the human brain, quite consistent with the doctrine that external things *in themselves* are wholly unknowable.

(3.) *Belief of the Real, Knowledge of the Ideal.*—So far as I can believe anything which I do not know, and which my reason tells me that I cannot mentally know, I frankly subscribe to the ordinary *creed* of realism, being at the same time convinced that no amount of argument can ever *prove* to

my mind the actual existence of the inkstand before me. There is no mystery here except the one insoluble mystery of human nature, the union of body and mind; which mystery the thoughtful peasant can see as clearly as the deepest philosopher; the vast mystery of the conjoint existence of a material body and an immaterial mind; of a living person and a dying thing conjoined in one mysterious whole.

If a man sets out by resolving to *believe* in the existence of nothing but what can be proved by reason, then he had better shut his eyes and his ears, for he can never believe in anything but the existence of himself. "Whatever is against right reason, that no faith can oblige us to believe," but "our faith *ought* to be larger than our reason, and take something into her heart." I go further than Jeremy Taylor, and say that *it must be* larger than our reason, and take something into our intellect that reason can never prove, not only in those higher transcendental moralities, but in the lowest and most vulgar concrete actualities that are at the ends of our noses and fingers.

The *knowledge* of the idealist is not inconsistent with the *creed* of realism. It is the man who has found the true limits of his knowledge whose faith must be at once the greatest and the most firmly established, being founded on the rock of truth.

Mankind believes in the reality of things, and we cannot almost use a single sentence of ordinary language without admitting *in words* that belief. But that reality, I say with Kant and all his followers, man is so constituted, that he can never *know* it; but I go further: I say that man is so constituted, that he cannot even *speak of*, or form any word or sign whatever, to express or represent that reality in which nevertheless his nature and his circumstances compel him to believe. Thus I say that human language is in its origin founded on an illusion, a mistake; and this it is which in my opinion lies at the root and is the true solution of all the squabbles of Philosophy.

The question has never yet, as I conceive, been properly ventilated and answered, or rather I would more humbly say that the

answer has been lost and buried in the pride and self will of the learned. *What are words?* what is true nominalism? If we consider realism as refuted, and dogmatic idealism as refuted, and that the true doctrine is that laid down by Berkeley, Kant, and the moderate of Kant's followers down to Sir W. Hamilton and Professor Ferrier, that things *in themselves* are unknowable, and that we only can know their appearances or phenomena *relatively to our own minds*, the question still remains, what part do words take in human knowledge? There is still the old mediæval question about nominalism just as unsettled, and in as great or greater confusion, than ever.

(4.) *Mediæval Realism, Modern Idealism.*—It is to be observed that the mediæval controversy between realist and nominalist, was different from that between modern realism and idealism, for the mediæval realist agreed with the modern idealist. The word realist has come to mean a different thing since the days of Reid. The ancient nominalist said that general terms, *i. e.*, universal words, had no external representatives in external nature,

but were only creations of the human mind; the ancient realist said that they had; viz., what Plato called divine ideas. "The fundamental principle of ancient nominalism was as follows: reality only exists in individual external things. Universals are merely notions of the understanding *without reality*, which notions are only designated objectively through language, and thence receive an appearance of reality, although they themselves neither contain a reality, nor do they correspond to a reality. The principle of ancient realism, on the contrary, was this: there is *no reality* in individual external things; universals are the true reality, and individuals, as such, are only distinguished by accidents." The ancient realist was nearly identical with the modern dogmatic idealist in denying the reality of external nature as we perceive it. The modern dogmatic realists, from Reid downwards, agree in part with the ancient nominalist, in asserting the reality of external individual things as we perceive them.

But it is very idle and useless work discuss-

ing schools of thought or philosophy. The really important question is, what we ought to think ourselves, and how we ought to express it.

The ancient controversy between realist and nominalist, was a dispute concerning the things meant by universals, *i. e.*, general terms. Modern inductive philosophy has so filled men's minds since the days of Bacon, that men have begun to think that all verbal questions are merely deserving of contempt; that men can get on without minding words at all, and, in short, that words take no part in inductive philosophy whatever. They think they are talking about *things themselves* existing in external nature in place of about their own *words* for things. They think that gravity, and forces, and affinities, and polarity, &c., &c., are things really existing in external nature, and not mere human words for human imaginations. They think these words, and all scientific words, represent external realities, and not merely internal idealities invented by man for his own convenience in talking, and which the breath of

man hereafter may blow to nothings, whenever some greater truth may be discovered or revealed.

(5.) *True Nominalism.* I assert that man cannot possibly speak of external reality! It is entirely beyond his power to speak of things external to his own mind. The convention and agreement of mankind cannot alter the nature of things and words. Our agreement about our words cannot alter truth. It is evident that man's words either have no meanings, and so are empty sounds, or nothing but vibrations of his larynx and pulsations of the air, signs unintelligible; or, they are words and have meanings, and are signs of the true meanings in the mind, not signs of the real things, whatever they are, of which the mind may suppose itself thinking. When I say my word *tree* means the real tree, I contradict myself in obedience to or concurrence with the common convention or agreement of mankind as to language. My word *can* mean my meaning only; my word can only express my thought, idea, perception, conception, &c., my state of mind: *that something* in the

brain or mind which causes my larynx and tongue to speak. My word *tree* cannot possibly mean anything but my own individual thought or meaning, the thing in my own mind upon, or about, or produced by the real tree, and not the real tree itself. Man's words, therefore, cannot possibly mean anything but each man's own private meanings, call them by what name you please, thoughts, ideas, impressions, sensations, reflexions, conceptions, representations, or intuitions, &c.; whatever words we choose, from age to age, from school to school, to give to the completed act of the mind in thinking, ending in a vibration of the larynx, or a stroke of the pen. Words, therefore, *in themselves*, if intelligible, are not, and cannot possibly be, signs of realities external to the mind, but only signs of thoughts or meanings in the mind of the man using the words. It is, therefore, *impossible* for men to speak of real things except the real things in his *own* personal individual mind. He cannot speak of his neighbour's thoughts, but only of his own thoughts of, or upon, or about his neighbour's thoughts

as transmitted to him by his neighbour's words, deeds, signs, and symbols.

However earnestly, therefore, a number of men may believe, and agree in believing, that their words entirely and truthfully represent external things, or internal thoughts, as they really exist, words, according to God's constitution of man, cannot do so. Words, *in themselves*, only represent, and can only represent the truthfully believed thoughts in the mind, or things in the brain, of each true thinker, making, or adopting, and so using the words. The materialist may say things in the brain, we say thoughts in the mind. We are not now discussing materialism, but *words*.

The only reality, therefore, of which man can possibly, according to his constitution, speak or make any sign, is the internal reality of his own thoughts in his own individual mind. He cannot possibly speak of *external* reality; or of any other man's *internal* reality.

So long as man is clothed with a body, so long man's body must continue to stand an utterly impassable barrier between the reality in each man's mind, and all other real exist-

ence whatever, whether mental, or bodily, or verbal, *except only such other independent mental existences*, whether deity, demon, spirit, or angel, as can communicate with man's mind *directly* and spiritually, and not indirectly through his senses as man communicates with man.

Men can *know* their agreement in words, but they can know their agreement in nothing else whatever. Their senses tell men whether they agree in their words, by their actively using the same words; but they never can know whether they agree in their thoughts or minds. Men can discuss their words, but they can discuss nothing else whatever; they are prevented by their constitution from even speaking *to themselves* of things as they really exist external to their own minds. I cannot speak or make a sign to myself of the *real tree*, much less can I speak it to my neighbour, between whose mind and my own, two impassible bodies are interposed. To be sure, we two can enter into a convention or agreement about our words, what we shall do, or say, or think, when we hear, or read, or see, or feel;

but our convention, our agreement, cannot alter the fact, or in any way affect the external fact in nature, or the truth of things. Our agreement, that the sound or symbol *tree* shall be taken between us to be the sign of the real tree, cannot make the sound or symbol *in itself* a sign or representation of the real tree, which is separated from our minds by our bodies. It still remains, when I use the word, the sign of the thought in my mind, and, when you use the word, the sign of the thought in your mind. It is so, has always been so, and will remain so whilst our minds are imprisoned in our bodies. This is simple fact and truth, unless we choose to contradict ourselves, or to say that the thing in my mind now writing, and the thing in your mind, reading these words, are one and the same thing, which is most certainly absurd.

Almost all the disputes of philosophers have arisen from not seeing, or erroneously seeing this truth. But it necessarily follows, that all human knowledge, all human science communicable from man to man, whilst imprisoned in these mortal bodies, consists of

words only, words expressing thoughts in the mind of the thinker, thoughts known only to himself and such Powers higher than man, by whom the power of reading man's thoughts is possessed. Men's *minds* are different, men's *senses*, which convey the *phenomena* to their minds, are different, and the only *factors* in knowledge which we have in common, are our *words*. There are truths of mind, and truths of bodies, and truths of words, but the only possible agreement between men in respect of any truth, is agreement in words, and in words only. Men say they have a knowledge of minds, and of bodies, and of words; but however earnestly they think that they agree in their knowledge of minds and bodies, their only agreement is an agreement in the words, signs, and symbols expressing the knowledge.

Why should we be afraid of this truth? Man's agreement in knowledge is merely agreement in words! If any trembling believer, or any untrembling worshipper of intellect, the two extremes of human faith and faithlessness, thinks that this conclusion is

dangerous, or lowers the dignity of human science, we answer, No! It is truth, and raises the dignity of human words! We become better fitted to believe that "for every idle word that men do speak they shall give account in the Day of Judgment, and that by our words we shall be justified, or by our words we shall stand condemned." Mentally! spiritually! each man stands alone in the universe of existence, with his own mind and with his own words, and with the being or beings to whom he is responsible. Man cannot get beyond his mind, his body, and the deeds or symbols made by his body. This is a deep truth, and worthy of earnest reflection. All agreement in knowledge is only agreement in words.

(6.) *The Convention of Language.*—But it may be asked, is there any objection to the mutual convention and agreement of mankind, that their words shall be taken and deemed to stand as or be signs of the real external existences, or the real internal existences, which produce the phenomena which lead men to speak, and give names to external things or

internal thoughts? To which I would reply, that to any honest bargain or convention between mankind, there can be no sort of objection, always provided men keep constantly in mind that their bargain, their mutual agreement and convention, is not truth and cannot alter the scientific necessity, the never ceasing truth, arising out of the nature of man himself, *a mind* imprisoned in *a body*, that in truth his words can only express the private thoughts in the mind of each individual thinker; that they cannot represent in truth, in themselves, any *real* external things whatever, or the *real* internal thoughts or ideas of any other human being of which reality he tries to think, or does think, whether truly or falsely.

But confusion becomes intolerable, and scientific discussion can have no end until every scientific man clearly sees, and holds, and submits to this truth. Science and philosophy cannot possibly discuss, cannot possibly speak of real existences, mental or bodily; they can only speak of, or discuss human *words!*

What then is truth, but those true words which no man can deny without, at the same time, contradicting his own conscience, and contradicting his own words? The object of the honest logician, of the true philosopher, the earnest and truthful teacher and preacher, is to take the words of mankind and to teach them to think correctly, by using words correctly, to teach them the truth which their words admit, and to urge them to hold it fast. Some wise man or silly being has said, that words are the counters of wise men and the money of fools. But, in order to become truly wise, men must become fools, and turn their words into good money, and feel that every word they use is worth more than gold, for it embodies the very heart and spirit of the man who truly uses it, and for eternal weal or woe may affect the living spirit of every fellow man to whose eyes and ears it may come, laden with emotion, intelligence, sentiment, or will.

Words! the office of words, therefore, is the problem of all philosophy. My words cannot mean your thoughts; your words can-

not mean my thoughts. Men can agree in their words, but this is the only agreement that can be possibly *known* between them. Their thoughts must for ever, whilst their minds are clothed with bodies, remain wholly and entirely unknown to each other. They can know whether their words agree; they can never, in this world, know whether their thoughts agree; but, from the agreement of their words, they can trust and *believe* that their thoughts do also agree. Two human minds are, in reality, as completely or more completely divided and separated, than one mind and one external body or any phenomena it presents. The words of one man are only phenomena or appearances to another; they strike his ear or his eye; they seem to rouse or soothe his restless spirit, or his intelligence. He adopts, he loves, he uses, and agrees to use the words; they seem to convey to his mind the certainty of truth. To him they represent truth; that something for which he might dare to die, rather than give it up, or confess it to be false; that truth which he knows; that truth which he feels; that truth

which has made him free! We must come, therefore, to some rational agreement and convention about our words, the words we use in common.

Words, we say, do not and cannot express minds or things *in themselves*; or the phenomena of other minds, or of other things, or anything else than the thoughts or meanings in the mind of each individual thinker and his thoughts *alone*.

Man's conventions and mutual agreements about words, whether for the purposes of ordinary life or for scientific discussion, do not alter the real nature of words themselves: they are the only representatives of human knowledge, the only records of human science. And surely it is time that men should feel some real responsibility for the words they use; surely it is time that men of science, men who profess to lead and to teach their fellow men, should come to some rational agreement, some convention more scientific than the agreement or convention made by every savage under the sun. There are true thoughts. We all admit and believe it. How are we to make, how are we to hold

fast, true words? We have nothing else in the shape of truth to offer to our fellow men as the offspring of our minds, but true words.

But perhaps you may say, that words are also external things, and, therefore, *in themselves* unknowable like other external things; but here lies the difference between words and all other things external or internal. Man's words can be, and are at the same time, and at different times, both external and internal things to different men. They can pass and repass, along different mens' incarrying nerves, and back again, along their outcarrying nerves, and can be returned from man to man, reviewed, and accepted or rejected; or altered and improved from age to age, as Man is permitted to approach nearer and nearer to the Truth. It is surely time, therefore, that our truths should receive some intelligible shape, and that our words should have some scientific value, some known and acknowledged standard, to which men of science should conform. This is the first step in, and this is the real problem of all true philosophy. Let us now consider it. What is true nominalism? What are man's words in truth?

CHAPTER IV.

THE PROBLEM OF PHILOSOPHY.—WORDS.

(1.) *Recapitulation.*—Let us first recapitulate the course of argument hitherto adopted. The reader will have perceived that, starting with the admission of ONE existence, which we called knowledge, and which we showed that no one could refuse to grant us, without self-contradiction, we, by deduction from this WORD, signifying the *thing* called knowledge, erected a TRINITY of things—a mind, a thing, and a word; the three *factors* in knowledge, of necessity, following by deduction from our first assumption. But, as knowledge is itself plural, including your knowledge and mine, and that of every man and being in existence,

we have three classes or categories, which we say are the names of all admitted existences, none of which can be denied to us by any man who speaks, without he contradicts himself, viz.—

Minds or mental things;
Things or bodily things;
And words, signs, or symbols—verbal things.

But, as minds and words are things, we are compelled, for clear speaking, to assume a new name for those things which are neither minds nor words; and we shall call them *bodies*, so that our three classes are—mental things, bodily things, and verbal things, Minds, Bodies, and Words. We think and say, that nothing else can be known or thought of but these three and their relations. Being, by presumption, or for the sake of argument, altogether ignorant of these three things, of their likenesses, or their differences, or of anything about them, save only their necessary—that is, their never-ceasing and distinct—existence, deduced from the necessary or never-ceasing nature or meaning

of the existence first admitted, we did, as bound by the laws of science and of scepticism, treat them at first, as in reason, all alike, and up to the present time undistinguishable in their nature; and, therefore, assumed necessarily *like* symbols for each, and called those symbols *units*. By this process of making or manufacturing words or symbols, we found ourselves at once in possession of one, two, and three units; and thence by repeating the process as often as we please, adding unit after unit, and giving a new name at each step, we arrived at all numbers and at all symbolic arithmetic. Numbers are, therefore, merely accurate words or symbols, or *names*, for bundles of units or signs, made alike by men. Nine, or the number 9, means *all the units* in nine, and so of every number, as far as we choose to count.

If arithmetic be knowledge, which it certainly is, it consists merely of signs, symbols, or words, made alike by men; *one* and *one* are two, two and *one* are three, three and *one* are four—thus giving a new name at each step. We thus wholly avoid all philosophic squab-

bling about *abstraction*; for, starting with assumed ignorance of Minds, Bodies, and Words, we had nothing to abstract; and as to likeness and classification, we actually make the likeness with our mouth, our pen, or our printer's ink. Thus, as Pythagoras did more than two thousand years ago, we began with numbers as the first foundation of all human truth and certainty—our first step in knowledge.

(2.) *Numbers are General Terms or Universals.*—Numbers, therefore, are what philosophers call general terms, universal words—meaning *all* the units in the number. Nine means *all* the units in nine, and ten *all* the units in ten; and so of every number, it is a general term, a universal word, a sign, mark, name, or ticket to a bundle of units—by which word, sign, mark, or name, men know it again or make their fellow men know it, who are able to make and use the same words or signs, and to so count or build up numbers in the same way. The certainty of numbers is, therefore, the certainty of human words or signs—units *made alike* by man's voice, and hands, and labour.

We then spent a little time with the old logical dames, *Barbara* and *Celarent*, refuting a great logician's very transparent absurdity of founding the certainty of numbers on induction, which itself includes numeration or numbers, and is founded thereon; and not unwillingly found ourselves ranged on the side of Plato and Newton, in opposition to Mill and Spencer. We have since glanced at those problems which have divided philosophers in all ages, and are still as unsettled as ever, not with a view of discussing them, which is not the object of this work, but in order to show the need of some newer and better foundation for building truth on than has hitherto been adopted. In short, I have intended to lead the reader up to the fence we have to get over in our hunt after truth—a fence more full of ugly places, where philosophers have attempted to cross and been lost, than any fence in England—viz., how we are to show by *words and signs how words and signs are to be understood*, how words are to *have some fixed and necessary meaning amongst philosophers and searchers after truth.*

(3.) *Whewell and Mill on Language.*—Alas! poor human nature has been groaning and sighing after truth for six thousand years, and for one grain of wheat she has got six bushels of chaff at least. But all knowledge, all science, all philosophy, that ever has ex isted, or that ever can, so far as we know, exist amongst men, must be thrown into *words* or human signs and symbols. Know-ledge, science, philosophy, without words, is an absurdity, a self-contradiction. So men set out with their words to build a tower to reach Heaven, and the result is a Babel. Is it not so, gentle reader, learned or unlearned, who has climbed after truth, or longed for truth to come out of the mist, at the top of the building, of learned or unlearned words? Is the foundation yet laid? We can neither teach nor learn without language, yet read the following sentence from one of the most able and most learned men in all England—learned in all the round of sciences, one whose own History of scientific ideas is calculated to do more to show us how truth and certainty has been, or can be reached than any modern

work that I know of in English. Hear Dr. Whewell.

"Language is often called an *instrument* of thought, but it is also *the nutriment* of thought, or rather it is the *atmosphere* in which thought lives: a *medium essential* to the activity of our speculative power, although *invisible* and *imperceptible* in its *operations*; and an *element modifying* by its qualities and changes *the growth* and complexion of the *faculties* which it feeds."[1]

Here, indeed, is a Protean character for Language! Truth is simple, and there is a truth hidden under this Babel of symbols. Words, we are told, are an instrument, a nutriment, an atmosphere, an essential medium, an element, invisible, imperceptible in its action; yet that action modifies man's faculties! Is this the simplicity, the certainty of truth? Is it not passing strange that able and learned men should go on digging for gold with no better pickaxe than what Dr. Whewell so graphically describes as the *language* of science

[1] Whewell, "Hist. Scien. Ideas." Book III., chap. x., vol. i., p. 286.

and philosophy? And "the History of Science" is, he tells us, his Dictionary—rather an extensive dictionary to open and turn up, in order to understand this "nutritious, instrumental atmosphere," or to arrive at the "invisible operations of this essential medium upon man's faculties." Hear Mr. Mill, on the other hand, his logical opponent!

"We think, indeed, to a considerable extent by means of names [words], but what we think of are the things called by those names. There cannot be a greater *error* than to imagine that thought can be carried on with nothing in our mind but names, or that we can make the names think for us."[1]

But then names, mere denotatives, says Mr. Mill, have, "*strictly speaking, no signification*," so that we think of things, and, to a considerable extent, by means of nothings, or things with no signification. Dr. Whewell describes a Proteus, an invisible air, modifying man's faculties. "Pugh!" says Mr. Mill, "general terms have no signification. This

[1] Logic, i., p. 200.

Proteus is, strictly speaking, *nothing;* but we think to a considerable extent by means of it, nevertheless." Here is a nice dispute about words and language between two of the ablest men in England, but the dispute is as old as philosophy itself.

(4.) *The Logical Result.*—In such a philosophic dispute, if bound to choose, I should prefer siding with the man who, at least, does not contradict himself. Dr. Whewell says words are *something*, and adheres to it. Mr. Mill says they are nothing, and does not adhere to it! This is the logical view of the dispute. But we are discussing the fundamental meaning, not the logical use of words. Adam Smith said that we might give any man a fortnight to tell us the meaning of the word "of," and at the end we need hardly expect a rational answer. Horne Tooke solved that problem by an induction, which induces most Englishmen to believe that all words were originally nouns or verbs.

When we have got that length, it is very easy, and I say necessary, for a logician to reduce them all to nouns or names connected

by the copula. John beats Harry, means only John is [a beater of Harry]. With the greatest deference to Dr. Whately and Mr. Mill, I venture to think "attributives" and "connotatives" wholly out of place in logic, in all true mental reasoning, however needful they may be in order to translate our reasoning into ordinary language and grammar. The copula appears to me to express always existence or equality—*i.e.*, a proposition or an equation. Analogy, or qualitative reasoning, is the *equality* of ratios. A ratio is clearly a mental existence. Lastly, by quantifying the predicate, in my opinion, every affirmative proposition can be reduced to an equation; but to reduce a negative proposition may require the impossible quantity.

Having thus shortly alluded to the existing state of the science of words in England, by two great examples of its confusion, I proceed to demonstrate what words are in themselves, and in fact and truth—*i.e.*, in true thought, if we are consistent in the use made of language by all men whomsoever.

(5.) *All General Words are Numbers.*—We

have already demonstrated that arithmetical numbers are general terms, or universals, *i. e.*, words signifying *all* the units comprised under the name. Ten means *all* the units in ten, and fifty *all* the units in fifty. Pure arithmetical numbers, therefore, are general terms, the only perfect ones in any language, each number is distinctly marked and separated from every other number, whether our numbers are formed on the binary, quinary, decimal, or any other system of arithmetic, and as far as ever we can count, *i. e.*, till we choose to leave off.

As all numbers are general terms, so I say all general terms are numbers. This is a truth which every peasant who ever spoke, as well as every philosopher who ever wrote or spoke, has, I say, admitted, and must admit. Of course, as long as error exists, men must contradict themselves. All error may be reduced to self-contradiction, for we cannot reason with a man till he will admit something, and the object of the true and faithful logician is to gain the admission of a truth from which the self-contradiction may be demonstrated. But all philosophers have ad-

mitted in man the power to *generalize*, or make general terms by abstraction. Now, the meaning of every general term, in every language under the sun, is, that it shall stand for and represent the class; *the whole number* of things called by the term or name. Whenever we use the word *man* or *tree*, we always, whether peasant or philosopher, mean *the whole number* of things called men or trees; *man* means all mankind, *the whole number* of men who ever did, or do, or shall exist, referred to by the speaker. The same is true not only of visible bodily things, but of invisible mental things; say, virtue or intellect. We mean by *virtue* the *whole number* of mental thoughts and acts called virtuous, or by *intellect* the *whole number* of mental powers or processes called intellectual. A class, kind, or family, is *the whole number of units* called by the name of the class. General terms or names, therefore, signify to every man who understands the language the *whole number* of the *units* of the class called by the general name. Every man who speaks intelligibly admits this; that every general

or universal word is a number, the *whole number*, so called.

But you will say, we don't know *the arithmetical number* of the class! Well, what of that? we did not know the number of the planets till Le Verrier and Adams discovered mathematically an invisible planet, and there are, no doubt, others yet undiscovered. But the word planet means all the planets that exist, not those only which we have seen with our telescopes. It means the *whole number* of planets going round our sun, whatever their number may be. This is a truth of words which every man in the world, savage and civilized, expressly admits. Every general term means and includes *the whole number* of units called by the general term. Let us hold this truth firm and fast, and keep it, and not contradict ourselves by using at one time our words, like all the rest of the world, to signify *the whole number* of things called by the name, and then say, like Mr. Mill, at another time, that our words are mere denotatives, and have, "strictly speaking, no signification." This is self-contradiction; it is

error, and not truth. It is, or seems to me, the fundamental error in Mr. Mill's Philosophy, the contradiction that confounds and confuses his mind.

Well, then, a general word is a *whole number*, and a number is a number of units. But the units meant by a word are not the units meant by a number, which we must now call an arithmetical number, to distinguish it from a verbal number. But still they are units. One man or one planet is a unit quite as much as one dot or one stroke, or as an arithmetical unit made on paper, and called one unit. The units of every word are different from the units of other words, but they are all units, men, trees, laws, or attributes; minds, bodies, words, or ratios, all are units.

(6.) *All General Terms are Products.*—Now, as we made our arithmetical units alike by drawing strokes upon paper, for example; so we can *make* our verbal units alike by drawing words upon paper, which was commonly called by the Greeks defining the general term. It is merely taking words, signs, or symbols, which we either make or see.

If we look through distorted lenses or coloured spectacles, our units are likely to be drawn distorted or coloured. But it is the object of discussion to remove the spectacles, or say, for example, to remove the stereoscope, and show one solidity vanished, and two pictures, both flat, instead of one picture apparently quite solid. What passes for the most solid truth is sometimes altogether flat, stale, and unprofitable.

If, for example, I say that every man is composed of body and mind, and that every man's mind is composed of soul and spirit, then, when I speak of mankind, I mean the *whole number* of units, each unit being composed of body + soul + spirit, that ever were or ever can be called men, and my word *man*, mankind, or men, means, and includes, and expresses all the bodies, all the souls, and all the spirits of mankind. Arithmetical units are simple units, but men are compound units. But each body is also a unit, and each soul is also a unit, and each spirit of man is also a unit, so that my word man, meaning the whole number of men, means the sum of the

sums of these compound units, and that, I say, is a *product*, or man = body × soul × spirit, or a spirit into a soul into a body. This is clearly demonstrable.

To the arithmetician who has properly learnt the grounds and elements of his science, I say that this is manifest. The summation of equal compound units is multiplication. Everybody knows that three times four means adding three fours—*i. e.*, three compound units of four each—or four times three is adding four threes—*i. e.*, four compound units of three each—that is, in multiplication to find *the product* we add compound units, in the one case of four, in the other case of three, therefore arithmetical numbers are bundles of simple units, and *products* are bundles of compound units; and general words, or verbal numbers, are *products* of compound units. Of course the reader will understand that the choice of likenesses, family or class likenesses, which makes man ticket a bundle of such compound units with a name, word, or general term, depends entirely on the true or false perceptions which we have obtained of

one or more of the units. We can either *choose* what we believe to be true likenesses, as I have done in saying body, soul, and spirit for man, or else false likenesses, and find very little difficulty in making general terms to express our meaning. But we cannot leave well established likenesses out of well known and understood words, if we wish to be understood. Sometimes men do not wish to be understood, and more often the likenesses are neither well known nor well established. But no one can possibly deny the fact that every general term or name is a whole number, and is the *product* of the general terms which express the likenesses of the class of compound units called by the name. I subjoin at the end of this chapter, a more strict or scientific demonstration of this truth, which I first published nearly twenty years ago; but the general reader will probably admit, as proved by the example above, that every general abstract term is the product of the abstract likenesses of its class of units.

(7.) *Denotatives and Connotatives, or Attributives.*—The distinction between denota-

tives and connotatives, or attributives, ap-pears, to my mind, mere mental confusion. It introduces grammar into logic, and intro-duces into philosophy, secretly, and not openly, the notion "that one *thing* cannot be the attribute of another *thing*, that there is some fundamental and admitted contradic-tion or distinction between an *object* and its form, colour, or other attributes; but if this be the fact, it should be proved, not assumed. It is quite true, that in ordinary language men distinguish between thoughts and things, between mental and bodily existences. But this distinction is the distinction between Minds and Bodies, and not a distinction in Words. All words, in logic, are at the same time denotatives and connotatives, and *mean* mental existences, *i. e.*, mean at the same time both thoughts and things. And although a man chooses to say he is reasoning about ex-ternal bodily existences, or other men's mental existences, yet it is clear, as we have already shown and proved, that he is only reasoning, and can only reason, about what is in his own mind; about his own thoughts of such ex-

ternal bodily or mental existences, and not about the external existences themselves. But to assume as well founded an original distinction *in words*, and to call the *names* of some sensible objects different from other words called names of our ideas, or of connoted or connotable attributes of such objects, is to enable the reasoner to assume at any time as well founded a distinction in the things themselves, *i. e.*, between the visible or sensible objects and the mental likenesses or attributes we discover in and attribute to them. We say, therefore, that every name, whether general or individual, every word, whether universal or singular, has, in honest logic, some meaning, some thought, some idea attached to it, and is, at the same time, both denotative and connotative, and it denotes an existence solely by its connotative meaning.

We can turn every word into an adjective, and be perfectly understood, so far as the meaning is fixed. This is true even of proper names singular; Socratic, Platonic, Kantian, connote certain loose ideas of the individual's philosophy. So in any family, any peculiarity

of the individual is attached to the individual name. Such expressions as "Coming John over me" would be perfectly understood if John had any peculiarity sufficiently marked to justify the expression; and every individual has such peculiarities known to his intimate associates. All England rang for some years with the name of Burke, the murderer, and every kind of violent destruction was for a time called "Burking." The Reform Bill was to be "Burked," &c. And, *à fortiori*, all general names are always at the same time both denotatives and connotatives, and signify both thoughts and things. The distinction, in short, seems to me only a covert and secret way of quietly assuming a distinction between certain things and certain other things; between some ideas of external objects, and some ideas of other objects, not objects of our external senses.

If such distinction exists, it must be proved, not assumed, as a distinction of *words*. All words are names of things, and connote the ideas or thoughts which give rise to, or are attached to the things. All words are, in

truth, the bodies or embodiment of thoughts, and it is as absurd and erroneous to treat words as being ever at any time mere marks or denotatives, as to treat the dead body of a man as being a man: to treat a dead body without a mind as a man, is, in truth, the same thing as to treat a word as a mere mark or denotative only. If a word ever becomes such, it is dead, it ceases to be a sign of any-thing whatever, it has become an empty and unmeaning sound, an unintelligible blot.

It is the duty, therefore, of every one who reasons about words, to express the *factors* which in his opinion go to form the words. If he says the word is simple and indecompo-sable, then he is bound to show how, or by what observation or experiment, the thought can be produced in his mind; to show what act or what action of body or mind produces the thought to which he intends his word to be applied by his fellow men.

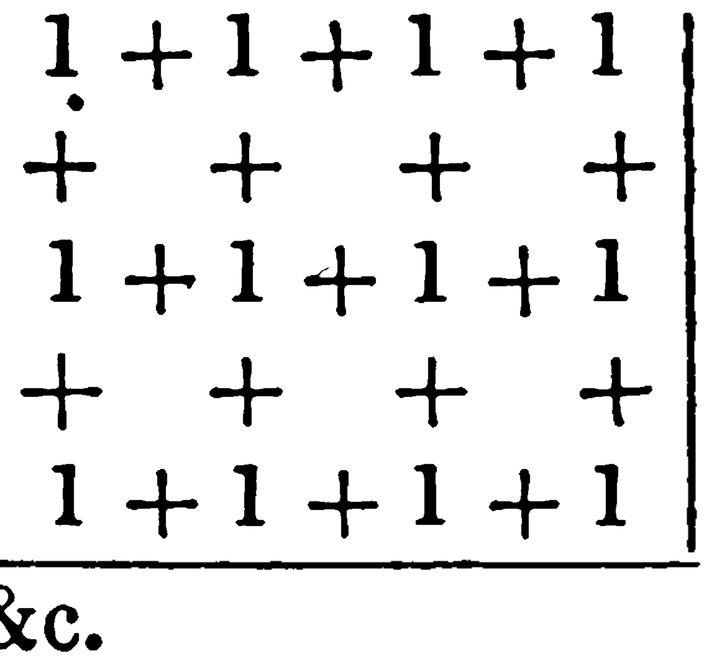
Let us now proceed, if possible, to exhibit some examples of the theory of words which we have been endeavouring to establish. We have deduced the word or thought of *number*

from our first assumption, and we say that *time* and *space* are thoughts, and can also be deduced from our first postulate, and that they are not, as Kant supposed, mere vague, unmeaning somethings; *forms* of thought necessary to all other thoughts, and yet not thoughts themselves.

We deny Kant's assumptions, and propose to substitute in their place some clear and definite ideas and thoughts to be attached to these mysterious words, as some philosophers have considered them, Number, Time, and Space.

NOTE.—To prove this truth; that every general term is the *product* of the general terms, which express the likenesses of the class of compound units called by the name, to those philosophers who get over geometrical problems "*by intuition* from a figure" (*vide* Spencer's Psychology), I give the following demonstration by a figure.

Let the following figure be *any number* of units arranged in equal sums—



&c.

If we stop at any time and count the units in the horizontal and perpendicular lines respectively, we have any two multipliers, say 4 and 3, and we have three sums of four each looking at the page as it now stands, and four sums of three

each by turning the page sideways, therefore n × n′ = n′ × n, and by multiplication therefore we mean the addition or summation of equal sums, *i.e.*, the addition of the compound units called sums, when we say four times *three* or three times *four*, and a *product* is a *sum* of compound units. We here, it will be again observed, *make* our sums of compound units equal without abstraction, in *pure numbers*; for we have nothing to leave out, nothing to abstract; that is, having in the beginning made our units as nearly equal as we could, we are wholly ignorant of their differences. But if we learnt to count on our fingers, we should have to abstract or cut off the differences of our fingers of course, until we learnt to make equal signs; or, if the number cannot be arranged in equal sums, then it is a product + part of a compound unit.

Now, the mind goes through the same process exactly with every abstract or general term whatever, in considering the units alike, and all philosophers say, and truly say, we abstract by not attending to the differences, though they be wholly or partially perceived. They say the mind knows that one man differs greatly from another man, or one tree differs greatly from another tree, and that when we speak of man in general, or trees in general, we abstract or leave out of our consideration our knowledge of these individual differences, and attend to the likenesses only. All philosophers agree in this, and it is quite true, so let us put the process into a visible figure. Take the abstract word, man or mankind. Each man, we have said = body + soul + spirit. That is, my word, for each man, means one body + one soul + one spirit + a difference, say, a longer body, or a greater soul, or a finer spirit, therefore:

					Differences.
	John	= body	+ soul	+ spirit	+ &c.
	Thomas	= body	+ soul	+ spirit	+ &c.
all	&c.		&c.		

and abstracting by cutting off the differences, as we have done by the upright line, then: all men = *all* human spirits

+ *all* human souls + *all* human bodies, which words *all*, &c., are again sums of the compound units, body, soul and spirit, the abstract general words so called; therefore our abstract or general term, Man = Body × Soul × Spirit; the *product* of the general abstract terms body, soul, and spirit. Or taking letters, let A be an abstract term, and a a′ a″, &c., the units called by the name A; and let the likenesses be expressed in the same manner by letters. We then have the whole class or abstract word A = all *a*s =

a	=	b	+	c	+	d	+	x	+	y + &c.
a′	=	b′	+	c′	+	d′	+	x′	+	y′ + &c.
&c.	=			&c.						

And abstracting the differences known or unknown, as we have done by the upright line, we have all *a*s = A = *all* bs + *all* cs + *all* ds = B. C. D., or the product of the abstract or general term B, into the abstract or general term C, into the abstract or general term D, for it is evident that the same process must be gone through with all the bs, and all the cs, and all the ds, therefore a = b + c + d, and the abstract general term A = B. C. D, where B, C, D, are all also abstract terms. Therefore every abstract general term = the *product* of the *likenesses* of a unit of the class; such likenesses being themselves considered in the abstract.

This, therefore, is the whole difference between a number and an abstract word, the number is a number of *simple* units assumed to be like by man; the word is a number of compound units, assumed like by man, and being compound, is *the product* of the abstract likenesses taken to form the class called by the name of the abstract term. If we had called man a rational animal, Man = Reason × Animal, and so for any other definition we please to give. Of course the reader will see that we ultimately arrive at the most abstract term known on the subject, which is itself × unity; for example, heat, light, electricity, magnetism, affinity, polarity, matter, form, and so forth. We thus arrive at abstract terms indecomposable, so far as human knowledge has yet extended.

Some may object that the proper representation of the abstract term A would be B + C + D, and not the product B. C. D; but this would deny that the summation or addition of compound sums is what we mean by a product, which I have first proved; but, of course, the complication of verbal numbers is different from the multiplication of arithmetical numbers, because the units are different and the mental process is different, but yet the symbols may well be the same. And all difficulty perhaps is removed by considering or assuming each compound unit not as a *sum* but as a *product* of its likenesses; or a = b. c. d, and the abstracted differences as additions to a product—*i.e.*, a = b. c. d + x, and abstracting the x then A = B. C. D.

Perhaps, still more properly speaking, it should be said that A varies as, or is a *function* of the product, B. C. D. This function depends, of course, on the internal relations of b. c. d—the likenesses which produce the general word; but logically, we cannot distinguish between a product and the unknown *function* of a product. Thus, for example, the great discoveries of Newton were simply these—viz., that FORCE is the product, M. S. $\frac{1}{T}$, or of *Mass* into the *Space* divided by the *Time;* and that GRAVITY is the product of M. $\frac{1}{D2}$, or of Mass divided by the Distance squared. The definition of KNOWLEDGE given in the text should be written thus, M. $\frac{T}{W}$, where M is not matter, but *mind*, and T. and W. *things* and *words*. For knowledge increases with the powers of *mind* and with the number of *things*, but does not increase, but diminishes with the number of human *words* or signs required to express the knowledge. In *self-knowledge*, of course, the whole three become *unity*. And so, as stated in the text, this thought of the composition or product of self-knowledge does not violate the unity of the Godhead, when we consider it as a Trinity in Unity.

CHAPTER V.

NUMBER, TIME AND SPACE.

(1.) *The Foundations of Verbal Truth.*—We have demonstrated, beyond cavil, as we trust, if such a thing be possible, that every number is a general term, and every general term a number; that the arithmetical number is a word, sign, or symbol, signifying *a sum*, or ticketed bundle of simple units; and that a word, general name, or verbal number is *a product*, or ticketed bundle of compound units. Every man who speaks and understands the rudiments of arithmetic and reason, must admit our conclusions so far.

What we have written will probably meet with two classes of opponents: the haughty scoffer, the idly indifferent; those who will

ridicule what they will not understand, or cannot answer; and those thoughtless ones who might stand at the brink of the deep foundations of some lofty building, on some low and level plain, and exclaim, what elaborate folly and trifling! what waste of good materials! lime, sand, and sifted stone thrown in deep below ground, where none will ever be able to see or use it. We cannot build safely without a firm foundation; but when a messenger knows his message to be true and important, he can stand the sneers and the jeers of a million of fellow beings.

To such there is no reply, but charity, and pity, and love unfeigned. The thoughtless who ought to think, but never yet have thought, who skim their Paley or Coleridge, and have never felt any spiritual anxiety to settle the moral truth, or to solve the difference, the life and death difference, between them; or who read Whewell or Mill without any intellectual desire to know whether scientific truth is founded on induction or deduction; to these we would say, rouse yourselves, and strive to understand the im-

portance, the deep, the rational, the spiritual importance, the eternal importance of man's words, the words he uses or abuses, the words by which he will be judged! judged as surely as there is a living God *in or near* to every one of us. Yes, God in or near! that is the question which all of us have to answer for ourselves, each of us alone in his secret chamber, now, or at all events on his death bed. Is He in or near us? What do your words really mean? that is the hardest question ever put to man, and, reader, you must answer it for yourself, for no other man on earth can answer it for you, either now or hereafter.

We may have a form of words, a form of godliness; there is one in some of our hands once every week, and those who do not use the form, often profess to have more of the reality; and what do we really mean by those words we use, or that thing we pray for, when we say on Sunday, "Cleanse the thoughts of our hearts by the inspiration of Thy Holy Spirit." There is a use and meaning, as well as an abuse and no-meaning, of such words as inbreathing, inspiration, &c. It is better not

to use them at all, than to have no meaning to them. It is more honest to scoff openly, than to act the hypocrite, and scoff secretly on your knees in your heart. It is not necessary to confound the Creator with the creature, whether a thing or a person, to believe in idolatry or in Pantheism, or in the last Lo here! or Lo there! yet it is necessary to believe that Christians "are builded together for an habitation of God through the Spirit." It is necessary to believe that "your body is the temple of the Holy Spirit," which God will give to those who ask Him, "that Spirit of Truth which shall testify of Christ," and which he promised to send from the Father to dwell with man on earth. It is necessary to believe in the Word of God.

(2.) *Scientific Truth Requires a New Convention in Language.*—We turn, however, to the scientific, and leave the moral question, what do our words really mean? I have shown you what they are; true or false numbers, of true or false units, and every man in the world admits this, or contradicts himself. But what do they really mean? It is no use

saying that general words are numbers, and that numbers are general words; that is as bad as saying or thinking that induction is founded on *numbers* of instances, and numbers on induction, *per enumerationem simplicem!* as if a little Latin would make sense of nonsense, or authorise a logician to beat round the bush in that way, and then pretend that he has caught the bird. Such logic, however, might get you the name of a very advanced thinker at Westminster.

The reader will perceive that I am using very ordinary English words, and as far as I can in the ordinary and *conventional* meanings, so that every Englishman can understand what I say. But I have long ago candidly avowed that my scientific theory and conventional practice are entirely opposed to one another. I avow the inconsistency in express words, and I have shown you that it is the established convention of mankind, that in order to be intelligible you must be thus inconsistent. But I intend, God willing, to show how both you and I may, if we choose, avoid such inconsistency as far as our intellectual

faculties and our moral qualities will enable each of us, *i. e.*, better for the future, I hope.

It is of no use, and very absurd to oppose or set oneself to violate the common convention of all mankind in the use of words; it is a breach of the original agreement made in infancy by us all, when we were taught our mother tongue. The agreement then made is made by all peoples, savage and civilized, in order to render themselves intelligible, viz., that ordinary words shall be signs or symbols of *external* things; *i. e.*, of things external to the mind of the speaker. It is also of no consequence to our argument, how language first began; whether with such words as *buzz*, or *nhizz*, or *tick*, or *crack*, to express verbs; or with such words as *cuckoo*, and *whip-poor-will*, to express things.

We have a language, and speak it under the implied condition and agreement to make ourselves intelligible to our fellow speakers. The original condition, convention, or agreement of all mankind, is that my word *thought* shall be deemed to be a sign or symbol, not only of the thought in my mind, but of the thought

in the mind of other men also, and that your word thought shall mean the same thing. This agreement may have arisen from men having occasion at first chiefly or only to speak of external visible things, and not of internal minds, and so settling the laws of language, that they could not be conveniently altered to suit internal nature when it came to be spoken of. The fact is so, whatever the cause may have been.

However, from Plato downwards, philosophers have been trying to get out of this law, of words meaning external things, by trying to make words mean not external things, but internal things; ideas, sensations, reflections, impressions, perceptions, conceptions, intuitions, &c., &c., &c., confusing and contradicting each other, till so far as metaphysics and philosophy are concerned, the old joke of those witty Greeks is still as true as ever; that philosophy, the science of sciences, is merely the profitable process of milking the animal that never gives milk into 'the pail that has no bottom! True philosophy, says one of the ablest of modern meta-

physicians, is still Plato, truly understood and false philosophy is still Plato misunderstood.[1] The game of words is still as lively as ever, and truth and certainty as far off as ever.

The convention and agreement of the whole world, however, is that words in ordinary speaking and writing, shall mean things external to the mind; but the conclusion and conviction of all those intelligent philosophers from Plato downwards, with whom I agree, is that words do not and cannot mean things external to the mind, but things *in the mind*; and this, whether the words are to be classed with the words *animal* or *tree*, having, as we believe, external phenomena to represent; or are to be classed with the words *thought* and *memory*, representing no external phenomena whatever, and having no external image to represent that we know of, or believe to exist anywhere, unless we accept Plato's theory of thoughts in the Divine mind. But the conclusion is self-evident to any one who thinks, that so long as man's mind is clothed with a

[1] Archer Butler.

body such as you and I have, my mind can never enter into, or be compared with your mind, and your mind can never into or be compared with my mind, and that we can only compare the sounds, signs, symbols, the *words* we mutually adopt and use to embody our respective minds or thoughts, and that this old, original, and continuing convention of mankind, as to language, is, therefore, false in fact. But we say also, that no truth has ever yet been arrived at until the old convention has been clearly abandoned, and some new verbal convention made and agreed to.

If an arithmetician were asked what number is meant by the symbol 101, he would answer, I cannot tell till I know the basis of the system. It may mean 5, on the binary system; or one hundred and one on the decimal system; or one hundred and forty-five, on the duodecimal; or many other numbers on other systems; and he would laugh at the man setting to work to convince him that it *must* mean one hundred and one, or any particular number! But the basis of an arithmetical system is merely the new original

convention or agreement on which the language of arithmetic, the arithmetical signs or symbols are to be understood, the units in all cases being conceived to be simple, or, as we have said, made so. Numbers being the simplest and most perfect general terms in language, have become the measure or make-sure of all other strictly scientific or accurate words. And no things whatever can be found to fall into the domain of strict and pure science until they are reduced to, and measured by numbers, which themselves are the just measures of spaces and times, and all other things by which we measure.

(3.) *The Certainty of Numbers from the Senses.*—Now, it is well worthy of observation, that Numbers are given to us by all our five senses. We can distinguish three distinct tastes, or three distinct smells, or three distinct sounds, as well as touches or sights; so that as long as any *one* sense remains, the human mind could form numbers from the senses, by considering sensations distinct and equal. All knowledge must begin with sensation. "He that has no sensation," said

Aristotle, long ago, "can neither learn nor know anything." But as we have already so often said, Numbers, or their truth or certainty, cannot be founded without self-contradiction on any induction from numbers of instances; for induction already supposes numbers in the mind. The certainty of numbers, like all other human certainties, is from *deduction* only, depending on the certainty of the original assumption, the truth and equality of the units assumed. In the case of numbers the certainty depends on our own *making* and assuming our units perfectly equal. Their truth and certainty is the truth and certainty of human existence and of the human capacity to speak. Units are equal signs, because they are *made* equal by us not to our minds only, but to our senses, as many as we can apply to them. Numbering, of course, includes an act of the mind, because mind is a *factor* in all knowledge, and we recognise numbers and their relations as knowledge, and use them as the measures of everything. But we draw no conclusion by *induction*, but make our numbers by *deduction* one by one,

and show others how to do so. Each number being, *ab origine*, wholly distinct, and clearly separated from every other, and strictly deduced from the preceding ones.

(4.) *Number, Space, and Time.*—As general terms or universals have been the battle-field of philosophy and logic in all ages, so the things called NUMBER, TIME, and SPACE, have generally been amongst the chief windmills which each philosophic hero in turn proceeded to encounter with his lance of verbal logic. Mr. Mill, for aught I know, is the first philosopher who denied their existence altogether. Numbers in the abstract he thinks are nothing, and infinite Space a mere superstition! but I am not aware whether he has clearly expressed his opinion to his countrymen about time and immortality; whether they are anything, or nothing but the bugbears of priests to frighten women and children, or merely the phantasms with which Christian philosophers confuse their brains.

It is quite as rational, in my opinion, to deny one's own existence as to say that the numbers, the words which we ourselves make

as names for units, which we ourselves also make equal and alike with our mouths, or our pens, are nothings! The certainty and truth of Numbers depends on the certainty and truth of our own existence, and our ability to give like names, and make like marks. From the first existence we assumed—viz., knowledge—we have *deduced* them strictly and without any induction. Their truth and certainty depend on deduction from our first assumption, and not on any induction whatever. The certainty and truth of the things called Time and Space is precisely the same, for they also, we think, may be strictly deduced from our first assumption.

It is easier, and indeed, more rational to deny the existence and reality of the external world without us, than to deny the existence and reality of that internal world which each of us feels and investigates for himself. Dogmatic idealism is, if possible, more rational than modern concrete materialism, though both are logically self-contradictory to the human mind.

(5.) *Time deducible from our first assump-*

tion.—As Numbers were deduced by merely adding like sign to like sign, and giving them names for ever, or as long as we please, or till we are tired; so that in fact Numbers fall into our third category as words or verbal things, synthetically built up and manufactured; so, we say, Times are mental things, made alike by the phenomena being recognised by our minds, and enumerated by *numbers*. In *Time* we add like thought to like thought, and number them; and so we can go on, as long as we please, to have and produce the sense of Time, by using numbers to measure, make-sure, or record our *Times*, or like thoughts.

Let us consider this a little carefully. As Numbers are bundles of ones, so Times are bundles of seconds; one two; one two; or the tick tack; tick tack of the pendulum. We *number* the thoughts which *like* things cause in the mind. The recurrence and numbering of like days and like nights, the recurrence and numbering of like solar appearances, the recurrence or numbering of any like thoughts; that combination produces our

sense of Time. However the thoughts are produced in the mind, if they are *alike*, we remember the former one, and with the second, the thought of time is produced. In short, as we obtained and deduced our numbers from like words, so we obtain and deduce our times from like minds. The recurrence or numbering of like mental states, the repetition or numbering of like mental phenomena, in short, the *enumeration of like minds*, thoughts, ideas, perceptions, or mental states produces the sense of Time in every man's mind.

Here we cannot appeal to our external senses for the likeness of the units of Time, for the unit of Time *is* a mental existence; but we appeal to each man's internal sense whether it is not the positive undeniable fact, that *like mental* phenomena produce in him the sense of Time. Therefore we say that we deduce Time from *like* minds, and make sure of, or measure our Time, by means of our first deduction, viz., *Numbers*, or like units.

The 4th Proposition of Euclid, to use an example by way of analogy, is an appeal to every

man's geometrical sense; that if two pairs of equal straight lines make equal angles, they may be *superimposed* so as to coincide altogether; and the ends of the bases of the two triangles coinciding, then by the postulate or axiom that two right lines cannot enclose a space, we conclude that the two triangles are altogether equal.

Much dispute, no doubt, for nearly 2,000 years, has been wasted on this fundamental proposition by puzzled headed logicians and philosophers, as to whether the reasoning is legitimate and lawful. But there it stands, and it satisfies every man who has any geometrical sense, and understands the definitions and axioms. Never, in the course of my experience, did I hear or see a boy try by *induction* from a *number* of instances whether it was true in some cases and not in others; but I have seen many boys who had no geometrical sense whatever, and could not by any means be brought to see any geometrical deduction whatever. So one finds boys and men who never get to understand the extension and comprehension of a term in logic, or how

they vary inversely, or the logical force of the clearest syllogism. But the world is not to stand still for dullards, nor can we possibly admit Mr. Herbert Spencer's abominable *non sequitur*, that of *an intuition*, from the crooked asses' bridge before him, to all the straight asses' bridges that ever were, or can be, thought of. We were taught how *to think* geometrically, and how to get over the asses' bridge without any figure whatever, and without having any kind of definite or perceptible figure in the mind. I don't call, and refuse to call this, a habit, for the same reason that I don't call Seeing a habit. It is a sense, a Divine gift; an original power and faculty. It is a fact, no doubt, that many men, intelligent and even able on other subjects, have no geometrical sense, just as some men have no sense of Sight. Such unfortunates never saw the force and beauty of geometrical reasoning, or possibly of the syllogistic reasoning to which Euclid reduced it. But we can no more reason with such men about the force of geometrical reasoning, than we can reason with a blind man about colours.

But precisely as the 4th Proposition of Euclid makes an appeal to the geometrical sense of mankind; so do I appeal to the general human sense of Time. What is Time in the mind? Think! Have you any sense of time when the mind is thoroughly busy and occupied? No! Time has past unseen and unfelt. But if we look up and see the old familiar scene, a stroke of Time has struck, and we look at our watch. Whenever the same, that is, a *second like state* of mind occurs, or is forced on us, that is Time, and realizes or produces our sense of Time.

To my mind, Time seems the negative of perfect mind. It is the obstruction to thought by the familiar sound, or sight, or other material interference with pure thought, which, as it were, compels the mind, enclosed in a body, to take in once more the old familiar state or thought, and so to feel a second of Time.

However, it has forced itself clearly on my mind; and I trust will force itself also on the mind of the reader; that the only true view of Time is as the negative of perfect mind, and

that times are simply *enumerated like states of mind* produced by like phenomena, causing a repetition, or enumeration of old familiar *thoughts* in the human mind. There are two acknowledged facts that strongly support this conclusion: 1st. How short and imperceptibly time passes to the mentally active; 2nd. How long time is to the man of one idea; the *same* thought constantly *recurring*, and forcing the mind to repeat itself, and remember the one thing, and so number many *like thoughts*, for example, grief, sickness, remorse, fear. God deliver us from an eternity of remorse! Times wasted, followed by Times remembered. It is unscientific and dangerous to truth, to assume anything you can trace higher; and certainly, when Kant assumed that Time was not thought, but a necessary form, or something inexplicable, necessary to thought; when he said, "*Time is given à priori*," it is not satisfactory to my mind, and he himself is uncertain; as, in one passage, he seems to make number generate time, and in another, time generate number.[1] It seems, however, to my

[1] *Ante* note p. 45. Mr. Mansel, whose study of pure

mind, very clear, that Time is thought; it is thoughts enumerated, and as Numbers are bundles of like words, so Times are bundles of like minds, *i.e.*, like states of mind or thoughts numbered. And I submit this fact to the sense of Time, of the thoughtful and candid reader; and whether I have not strictly deduced Time from my original assumption, mathematics does not seem to have been of the very deepest, says, "Pure arithmetic contains no demonstration." And again, "*Arithmetic is related to Time as Geometry to Space.*" And again, "To construct the science of arithmetic, in all its essential features, it is only necessary that we should be conscious of a succession in Time, and should be able to give names to the several members of the series." —Metaph., p. 256—258. To my mind, it might just as reasonably be said, that arithmetic is related to Virtue, as to Time. We number Virtues, and we number Times; but we never time numbers. So we number spaces, but we never *space*, or attribute space to numbers. What can be meant by saying "Pure arithmetic contains no demonstration" passes all comprehension, for it is all unanswerable demonstration from first to last; demonstration to the senses and to the understanding. Possibly Mr. Mansel only learnt his multiplication table, and found there that 3 *times* 4 are 12, and never was shown any demonstration of that fact, or that multiplication is only a short way of doing addition or numeration; and the *Times* in the multiplication table have, by association of name, got confounded in his mind with the sense of *Time*; or he may think he is carrying out Kant's notion of Time generating Number, whatever that may mean.

and lawfully and unanswerably included it, in my category of *Mental things*.

(6.) *Space Deducible from the First Assumption*.—Whatever doubt the reader may have about my deduction of Time from numbers of like thoughts, I really think he can have very little doubt but that every man's thought of Space is gained from number and time and the negative of body. It seems to me a most gratuitous and unfounded assumption to say with Kant, that Space is a *form*, or original something, we know not what, necessary to enable us to think of body or anything else. Put *three* bodies touching, and then—*i.e.*, in time—take the middle *one* away, and *every man* would *say*, that is the *space* the body occupied. We first think Body, but our unit of Space is mentally deduced from it afterwards by number and time.

The absence of body and its possible or actual return.—The emptiness left at any time between two bodies—that is, a unit of Space; but deduced from several bodies, going and returning—*i.e.*, being or not being *numbered in Time*. Thus we have our units of Space,

or spaces, as bundles of like negative bodies, or the same body, *absent* in time, and its returns capable of being numbered.

(7.) *The Infinity of Number, Space, and Time.*—Hence, I think, Number, Time, and Space may be strictly deduced from our first conception of knowledge, as the product of minds, bodies, and words. True and accurate Science must ever be formed by assuming the least possible number of original conceptions, as the foundation of our reasoning, and thence deducing as strictly as possible, by unanswerable reasons, the more complicated and recondite conceptions consistent with fact.

The admission of the first existence assumed, viz., knowledge, gave us three existences—mind, body, word. The assumption of the acknowledged human power, to make *like* sounds or *like* marks, equal units, gave us from these three, all numbers to infinity—*i.e.*, without possible reason to stop, without end, or, as we say, *Infinite Number*. Numbers of like minds, like states of mind, gave us Time; and, of necessity, the infinity of Number became applicable to our *numbered* times,

and gave us thence Infinite Time, which is only the Infinite *Number* of days, or seasons, or years, or limited times. Lastly, Body and Number, and Time for absence and return, gave us limited space, as the negative of limited body, numbered once in time and gone to return or not, as time may show; but having got one limited space and Number, Infinite Space is only the infinity of Numbers applied to limited space.

We thus have attempted, with what success, the candid and philosophic reader must judge, to deduce Number, Time, and Space—the three great measures of all external things known to man—from our first conception or assumption of Knowledge, as some single unknown Existence granted and admitted by the reader. We have already observed that pure geometrical conceptions are deducible from the undeniable fact of the impenetrability of Body or matter giving to our reason a Surface which we can touch, but whose *thickness* is beyond our senses—*i.e.*, nothing that we can measure; and having obtained a geometrical surface, we get lines without breadth,

as its limits, and points, without dimensions, as the limits of lines, all of which are *necessary* deductions from Body and Space.

The most abstract conception of all Knowledge, that I can form, is as the *product* of Mind upon all mental things, bodily things, and verbal things, expressed in words and registered in the Mind itself by numbers, times, and spaces.

(8.) *The Certainty of Deduction and Scepticism.*—I submit that this deduction of Number, Space, and Time is a strict deduction, by reasons which no man can controvert, founded on the first admission or assumption. It is strict demonstration to the mind, how our knowledge of minds, bodies, and words, not only may be, but *must be*, synthetically built up and accumulated step by step, if we desire to be *accurate*. Each of these steps, as well as the first assumption, no rational being can deny, without self-contradiction. It seems to me much more rational, and I hope I have made it more satisfactory to the reader, to proceed thus step by step, than to assume such deep ideas as Number,

Space, and Time, *à priori*, as somethings, *one does not know what*, forms of thought; things necessary to enable us to think at all; or, still worse, as Kant proposed, to assume Time and Space, as fundamental ideas, "necessary forms of experience;" and to neglect *Number*, the very origin of all human truth and certainty, and of all our truest thoughts of the illimitable Infinite. Such Assumptions, lying at the foundation of all thought, or alleged by a great philosopher to do so, enables any sceptical philosopher to blow the whole fabric to pieces, by denying the assumptions with more or less probability; and then, confusing all thoughts by calling Number and Space non-entities, the Sceptic ends by denying the accuracy of the foundation of the plainest and clearest truths that man has built up, from the days of Pythagoras and Plato to those of Newton and La Place. The denial creates doubt, and confusion, and difficulty in weaker minds. Even though the sceptic himself should be self-compelled to exhibit his own absurdity, and to substitute the magnificent *inductions*; that night is the

true cause of day, unless it be that day is the true cause of night; in short, that "the evidence of the scientific is built upon the unscientific," and that the Cause of all things is "the uniform sequence of events," from which it is undistinguishable; that Law and Cause are one and the same, and the Universe a concourse of atoms, acting and reacting on each other, caused by nothing! that the First Great Cause has retired, and delivered over his handiwork to a "great plurality of causes," or to "no cause at all!"

(9.) *The Conclusion.*—Thus we say that numbers are only accurate words—the first, the simplest, and the most accurate that man possesses. So far as man is able to count, that is, to make numbers, he can never mistake one number for another. A man who can count to 20, can never mistake 19 for 20. But if he can only count to 3, then he can never mistake 1 for 3, or 2 for 1. So if he can count to 100, or a million, or a nonillion, or chooses to *give names* to any higher number, he can never mistake or confound one *number* for another. If he does, we say, he

has forgotten how to count, and other men have no difficulty in setting him right. Numbers, therefore, are *true and certain* words and symbols, made true and certain by man's own manufacture demonstrated to eye and ear. Man *ought to be* master of his own words at least. "What hast thou that thou didst not receive?" said St. Paul. If it be not *our own use* of our own mother tongue, I cannot answer the question. But, for my part, I see nothing very absurd in supposing that even this *usage* may have been received from another Spirit. Evil communication corrupts good manners of speech, as well as all other good manners.

However, numbers are the measures or make sures of both space and time. But Number, Space, and Time, may be considered as great Units; and then are considered as infinite number, infinite space, and infinite time, because, as we find our numbers can *never end*, and that we can apply numbers, or are forced to recognise numbers in measuring limited times and spaces, and as strictly applicable to space and time, we carry the infinity or never

endingness of numbers to both of them. We thus reach the conception of THREE infinite never-ending UNITS—NUMBER, SPACE, and TIME. Number is infinite words, Time is infinite thoughts, Space is the mental conclusion from infinite bodies. Thus are the three deep conceptions of Number, Time, and Space, included in our three classes or categories of minds, bodies, and words.

Ever since man first tasted that fatal tree of Knowledge, no man can, without contradicting himself, deny the existence of some knowledge. The admission of some knowledge necessarily implies Minds, Bodies, and Words. One, two, three, gives us Number to infinity. The negative of perfect Mind is Time; the negative of Infinite Body is Space. The Infinity of both the last, is the same as the Infinity of numbers. The man who denies infinite Time or infinite Space must deny infinite Number, must deny his own words, must deny his own body, or must deny his own mind, must deny our first postulate, that knowledge exists, must deny the one Great God of Truth

from whom all truth is derived. To his own master he standeth or falleth.[1]

(10.) *Kant's Forms of Thought.*—Kant's notion that Space and Time must be assumed, as given *à priori*, and are the necessary forms of all pure cognition, is therefore evidently erroneous, for the one sufficient reason that he forgot Number. What is a number, if not a word deduced as I have described? At all events, a number occupies neither Space nor Time. We think a number quite independently of both space and time. It is *first*, and independent of both. In what place does the number *three* exist, or in what time? We apply number to spaces and times, but not Space or Time to Number. *Three* is a thought in your mind, and my mind, and in every intelligent mind that ever did or can exist; but it occupies no space, it endures

[1] Mr. Bain, in his able work on the "Senses and Intellect," has justly remarked that "Space might be conceived in the absence of an external world from the body's own movement in empty space, from the muscular movement." Man's own body is positive, and space is the negative, and is rendered positive by occupation of it by body. This seems our simplest thought of space, viz., thoughts of numbered movements of our own bodies.

through no time. It is eternal and necessary; and so of every other number—it can never change. The meaning of the word *three*, and of every other number, is a cognition, and utterly independent of both Space and Time—a cognition never-ceasing, unchangeable, eternal. If it even be said that the human mind cannot conceive *three* until it has spent Time in counting it, or learning it from three bodies, or fingers, or spaces in external nature, that may show the defect, or imperfection, or infancy of the human mind, or even that the human mind itself exists in Space and Time, but surely does not affect the meaning, thought, or pure cognition of the number *three*. Kant himself, as we have observed, is dubious between number and time. Dr. Whewell is also dubious. He seems to derive Number from Time by the idea of succession, but admits that some may apprehend Number by a direct act of intuition.[1] But succession is number in Time. He suggests that "Space, Time, Number, *Cause, and the rest,*

[1] "Hist. Scien. Ideas," bk. ii., ch. ix., vol. i., p. 143.

may be termed different forms of the impulse of the mind to generalize!"[1] This, of course, is multiplying assumptions *à priori*, and not reasoning from them, and worsens the defect of his master Kant. However, I claim Dr. Whewell to be on my side; or rather, I wish to say, with sincere humility, that I claim to be on his side when he is right. In his "Nov. Org. Renov.,"[2] he says, "To count a *number*, is from the first opening of man's mental faculties an operation which no science can render more precise. The relations of *Space* are *nearest* to those of *Number*, in obvious and universal evidence."—"The idea of *resemblance* may be noticed as coming *next* to Space and Number in original precision."—"Then *Cause*, vague and general."—"But the other ideas on which science depends, are not unfolded till a much later period of intellectual progress." Also, at p. 171, he seems to admit that the true course of scientific ideas begins with *Number*. He is writing history, but I am deducing thought; and Science has

[1] "Hist. Scien. Ideas," bk. ii., ch. ix., vol. i., p. 146, n.
[2] Page 62.

grown by fits and starts irregularly. It is man's business to reduce his thoughts to order. Other metaphysicians improve on the defects of these great examples, by multiplying such defects more and more, assuming as many intuitions as there are thoughts which they like as principles; and think their *ipse dixit* of an intuition a sufficient reason for its being granted as a fundamental principle of the human mind.[1] At last comes Mr. Spencer, who arrives at the climax of absurdity, by insisting on an intuition for every problem of Euclid, by which intuition he jumps to a conclusion, from the crooked figure he makes on the paper before him, to all the straight figures which ever did or can exist! A species of *sequitur*, which, no doubt, induced Newton to write in his Euclid, "*Hic Liber aut nullus decies repetitus amatur*," whence, by an intuition, quite as well founded, I might conclude, *Homo est bipes implumis*—*i.e.*, "an unfathered biped," as a Scotchman might pronounce it, and created by a concourse of atoms!

[1] Dr. McCosh on Intuitions.

(11.) *The Trinity of the Human Mind.*—Our first standpoint was the deduction of a Threefold in our first Cognition, which we proved that nobody could refuse to admit. We have now reached another remarkable position. We have arrived by deduction, *à priori*, from our original assumption of some knowledge as an existing thing, at Number, Space, and Time—the three great measures of all bodily existences under the sun. Having reached this very remarkable standpoint, we submit that we have reached our first stage in the true philosophy of minds, bodies, and words. Plain reason confutes the errors of scepticism, and establishes that logical Trinity, which has been dimly seen by some of the greatest and most thoughtful metaphysical reasoners, that the world has produced, from Plato to Newton, both included.

This, Trinal symmetry in Unity, is the fundamental law of the human Mind, the dimmed image of its Maker. Man cannot reason correctly without confessing in words, logically, the greatest of all revealed truths. The human mind is also *one*, but it also has *three* com-

ponent factors, which all metaphysicians, more or less, have dimly perceived—Emotion, Intellect, Will; or Passions, Faculties, Sentiments; or the Sense, the Understanding, and the Reason—that higher Reason which dominates, directs, and purifies. The admission of *one* Existence does, of necessity, according to the constitution of man's mind, necessarily admit and pre-suppose *three* original existences; three Beings, not the parts, but the *Factors*, the Persons, the component Units in that Divine Unity. The very first step in knowledge, the very first cognition that man can possibly make, does logically confess this great truth, of three units, factors in unity—the truth, which was, in the fulness of time, to be revealed in all its *moral* significance in the writings of humble and ignorant Jewish Peasants.

Thus is the Moral Majesty and Wisdom of God vindicated, by confuting the hesitating wisdom of the world by the simplicity of the humble; by directing their words, not to the intellectual, but to the moral, to truths higher than the intellect; enlarging, and

extending, and raising, and purifying the thoughts of philosophers, by the moral thoughts revealed to the ignorant, and revealed in words, without the form of the logician, or the worldly skill of human science, but confirmed by man's highest Reason. "I thank thee, O Heavenly Father, Lord of heaven and earth," said the man Jesus, rejoicing in Spirit, "that thou hast hid these things from the wise and prudent and revealed them unto babes; even so, Father, for so it seemed good in thy sight."

This is true Revelation, where the highest moral truths are not discovered by philosophers, but are proclaimed openly and plainly as God's truth, by the peasant, not in the words of man's wisdom, but so that the most wise and the most ignorant of human kind can equally hear or read, and morally understand, and therewith enlarge, elevate, and improve their emotions, intellect, and will.

(12.) *The Scientific Expressions Established.*—The conclusions we have deduced from our first assumption, that *knowledge exists*, are these—The thought of the Self-

Knowledge of the First Existence is to man, *necessarily*, a Trinity in Unity, and a Unity in Trinity. Which is a logical confession of man's humility and ignorance of the constitution of the Godhead, save as a Threefold Unity.

Human Knowledge = *Mind* into *Thing*; into *Word* = the *product* of Minds, Bodies, and Words.

All things known to man consist of

Mental Things	+	Bodily Things	+	Verbal Things.

A *number* is a named *sum* of simple units;
A general word or *Universal* is a named *product* of compound units.

Infinite Number is Unity into Infinity, or the product of *one* and *infinity*, or never-ending-ness.

Infinite Time is Number into Mind, or the product of *thoughts* and *infinite number*.

And *Infinite Space* is Number into Body, into Time, or the product of infinite *Numbers* of *Bodies* in *Time*.

These three great infinite abstract words or

thoughts are strictly formed according to the rule in the last chapter—viz., as the products of the likenesses of the individual units of the class. Thus the likenesses which each number has to other numbers are the units it is composed of, and the power to go on and take another and another step that is never-endingness or *infinity*. Therefore, the Great Abstract Term, NUMBER, is the product of *unity* and *infinity*. So the likeness which each unit of Time has to another time, is *numbers* or successions of like minds, *thoughts*, or states of *mind*. Therefore, by our rule, in the last chapter, the Great Abstract, TIME, is the product of the two factors, *Number* and *Mind* or thoughts.

So the likeness which each unit of space has to every other unit of space, is the *successive* possibility of a *body* in *time* filling it. That successive possibility of interaction, between Body, and Time, removing and restoring it, is our conception of the unit of Space; and, therefore, by our rule in the last chapter, the Great Abstract Word, SPACE, is the pro-

duct of the three factors—Number, and Time, and Body, *i.e.*,—

$$\text{Space} = \text{Number} \times \text{Time} \times \text{Body}.$$

But in this product body is *negative*. It is *absence* in *time* between *numbers* of other *bodies*, that produces our idea of Space. So I think the repetition of like thoughts, or *Time* is the *negative* of perfect Mind, and therefore, Time and Space are both originally *negatives*, but not therefore non-entities.

Now, if we substitute in the above equation for Space, the value of Time, already established, we should have Infinite Number twice over, or numbers upon numbers, and Mind and Body; and we thus arrive at an expression for infinite Space, as being equivalent to infinite numbers upon numbers of minds and bodies! We arrive, in fact, *by deduction*, at the solemn feeling and the sublime expression, which a Christian philosopher might find rising to his lips, on some starry night, when, gazing from his observatory, in the midst of some great centre of human life, and looking upwards

to the infinite numbers of starry bodies, in the Space above his head, and downwards to the infinite numbers of minds like his own on the Earth at his feet; and then dreams, like a child, of the power, and wisdom, and goodness, and the *revealed purpose* of his Creator, to people a universe of worlds with an infinity of never-dying, intelligent, and moral beings!

If such a philosopher, engaged in such contemplation, has had the sublime happiness to learn humility at the feet of Jesus, and has learnt to struggle, by the grace of God, successfully to some extent, to keep down that infernal pride which prevents man from humbling himself even to his Creator, he may possibly call to mind that first occasion on which, in plain and unmistakable words, a wayworn Jewish peasant, "wearied with his journey," sat by a well-side, and said to a guilty woman, "I that speak unto thee am He!" the Messiah; "God is a Spirit, and they that worship Him must worship Him in spirit and in truth! *The Father seeketh such to worship Him!*" Will not such a philosopher, I ask, as he looks down

in contemplation on the millions upon millions of ignorant, and thoughtless, and guilty men and women on the earth below him, and upwards to the many mansions in *His Father's House*, exclaim also, in the words of his Lord and Saviour on the same occasion, "Truly, the harvest is plentiful, but the labourers are few; pray, therefore, the Lord of the Harvest that he would send forth labourers into His Harvest !"

CHAPTER VI.

SCIENTIFIC TRUTH AND CERTAINTY.

(1.) *Scientific Certainty Numerical.*—Let us consider what is meant by Scientific Truth and Certainty. We have demonstrated that every abstract word or general name is a number, the product of two or more factors, until we come to an indecomposable word, a verbal unit; each factor of a compound word being itself the abstract word or general name for one of the *likenesses* in any unit of the class. The word plane-triangle, which means all the plane triangles that ever did or can exist, is, for example, the product of the thoughts or words, Plane-figure × three right lines. The most material and most certain part of this definition is the number *three*, the numerical likenes

which all triangles have to one another. Once we can apply a pure arithmetical *number* to the unit of any class as a likeness of all the units of the class, we at once have a *definite* class; for a pure arithmetical number can never be confounded with any other. We can *never* confound a plane triangle with any other figure. Our senses may fail us, of course, in determining whether any external individual falls within the class in seeing or touching the number of sides or angles, or knowing whether the sides are straight, &c., and so leave us doubtful, after full examination, whether the external unit belongs to the internal class or not; but the mind never can confound one arithmetical number with another. The concrete application, the *value* and *utility* of our abstract conceptions may depend on our being able to *count* and *measure* external things, but the *pure truth* of our reasoning is quite independent of all external things whatever. Once, for example, that we have got the word *isoceles* triangle, meaning, having two equal sides, we can never mentally mistake a

unit of the internal mental class for anything else. This *numerical* certainty runs through all pure and mixed mathematics, and all mathematical names are thus rendered certain, viz., by taking a *unit* of space, a *unit* of time, a *unit* of velocity, a *unit* of force, a *unit* of mass, and so on, thus introducing the certainty of arithmetical number into all mathematical reasoning; each new set or class of units, becoming themselves measures of some higher and more compound class, and carrying with them the certainty of arithmetical numbers, with such amount of external certainty as the discovered unit of the new class may possess.

It does not appear to me, that the vital importance of this accurate *numerical* measurement of the units of a scientific class is sufficiently appreciated by natural philosophers. The accurate measurements in number, space, and time, where applicable, and of mass, and force, and velocity where measurable, are the only road to certainty of thoughts concerning external nature, which is full of numerical marvels yet to be dis-

covered.[1] *One* plant or animal, the relations of whose *parts* were accurately measured and recorded *numerically*, might do more than years spent in loose comparisons and analogical arguments about qualities, likenesses, intensities, &c., &c. Number, space, and time are the three great measurers and certifiers of all natural external phenomena. No class can have any accurate scientific *value* till it is founded on number, space, and time, applied to the parts of the unit of the class. Types are *useful*, but numbers are *true*. Types are rule of thumb classification, but numerically measured parts are the only foundation of all *true* classification.

Cuvier's discovery of the correlation of the parts of every organised being awaits the industrious *measurements* of all observers, in their own particular department of natural philosophy. The correlations are, without doubt, numerical and definite, if we only search deeply enough to find them. The very

[1] As, for example, in Phyllotaxis or leaf arrangement, in Botany, and numerical symmetry in Chemistry, Crystallography, Physiology, &c. The correlations to be truly scientific, must be numerical, and nature is full of them.

hairs of man's head are numbered; and, in my opinion, I think the time will come, when, from some obvious and self-evident phenomenon, we may be able to demonstrate in almost all cases, that the number of all the parts of an organism lie between the limits n and n'. When the laws of organised bodily structure have been studied with a true and accurate philosophical method, by numerical mensuration, I think this will be found to be the case.

Extravagant as this may appear to philosophers who sit down contented with *types*, and *degrees*, and *intensities*, who still believe that there is some original and fundamental difference in nature, between what Locke called the *primary* and *secondary* qualities of matter, who do not see that the whole difference lies in man's own dull perceptions, in his own dull bodily organization, which it is the business, and the pleasure, and the duty of his mind to remove farther and farther from age to age; yet, surely, some of these philosophers ought to be shaken in their opinion, when they remember, that to many great

philosophers of old, *motion* and velocity, and many other scientific words or thoughts, were mysterious, and gradual, and intense; that before the days of Newton *force* also was spoken of as synonymous with the "virtue" and the "influence," and the "power" of the planets or other bodies, and admitted of *intensity* and *degrees*, in place of units and measures in number, and space, and time.

The primary qualities of Matter, as Locke called them, viz., solidity, extension, figure, motion, or rest, are no more in the external bodies we see, than our minds are in the external bodies we see; instead of in our own bodies. They are merely loose and inaccurate thoughts, mental existences, or things expressed by words, and can only become true and certain thoughts and scientific words, when, and so far as, they are measurable by number, time, and space.

So the secondary qualities of Matter, colours, sounds, tastes, smells, &c., as has been more generally admitted, are just the same; *mere words* for thoughts in our minds, and nothing in the objects themselves

that we can possibly know. Solidity and colour are both mere unknowable somethings, powers to produce effects upon our dull and imperfect bodily organization. When it is said, "we cannot measure secondary qualities in the same way in which we measure primary qualities by a mere *addition of parts*,"[1] that is merely saying that we have not yet discovered how to measure them by *number*; we have not yet got or discovered true and certain measurable *units*. We do not yet know what a double colour or a treble colour is, just as before the days of Newton we did not know what a double force or a treble force was.

There is here, as I submit, a want of faith in the human mind. Why should we not go on with our photometers, pyrometers, hygrometers, making better and better "examples of the systematic reduction of sensible qualities to modes of numerical measurement,"[2] until some new Newton shall arise, who will tell us for certain what a double colour or a

[1] Whewell, "Hist. Scien. Ideas," vol. i., p. 332.
[2] *Ibid*, vol. i., p. 335.

treble heat is, and how it must be thought of, just as the old Newton told us what a double or treble force is, and how Force must be thought of by all men of science?

Why should there not be a succession of Newtons? men beginning with the fear of the Lord of Hosts, the God of Abraham, and Isaac, and Jacob, the One true and only God, men who may search with the simplicity of children and the energy of men, and may find *means* to bring the palsied minds of their fellow men further into the presence of the Divine Word; who may take off the house top of human thoughts that hide the Truth from mankind; and may be able in pure words to teach us new wonders from that ocean of truth, into which Newton has hitherto cast the most illustrious pebble? Newton himself discovered that the *coloured* spectrum of the Sun's rays can be reduced to the musical *numerical* scale, but the discovery has remained barren, and our *harmony* of colours has yet to be developed scientifically.[1]

[1] Mr. Ruskin directs us to peep through a square hole in a bit of card in order to find the harmony of colour in

(2.) *Certainty by Space, Time, and Numbers. Newton.*—We say, however, that the truth and certainty of every scientific abstract thought depends on our finding some numerical measure for it, in space and time, *i.e.*, some measurable *unit*, which can convert the imperfect verbal number into a perfect mental numerical number.

The truth of this is, perhaps, best illustrated by the dispute we have alluded to, the most illustrious that has occurred in the history of science. Before the time of Newton, the abstract word *force* was as vague and unsettled as any modern pseudo-scientific term can be. It was synonymous with *power*, and *influence*, and virtue, and was *strong* and *intense*, and admitted of *degrees*. Nobody knew, till Newton taught them, what to understand by a *double* force, or a *treble* force. The abstract term force had a meaning, but it was not *numerical* or

nature, and our walls are covered with speckled dabs called the Mediæval School of Painting, fitted rather for savages than civilized men, and little attempt is made to search, with scientific precision, for the true laws of harmonious colouring.

measured by space and time, and was therefore not accurate, or true, or scientific.

When Newton, by an act of mental vigour, which has made him the most illustrious man of science the world has ever seen, perceived how this vague abstract term was to be truly measured by number, and space, and time, his conclusion was disputed by a philosopher only second to himself. Leibnitz and Newton were, perhaps, the two greatest philosophers and ablest men of science that ever lived at the same time together upon this earth. To the one we owe the wonders of modern astronomy, and to the other, to a great extent, the clearness of the modern calculus. Newton possessed the clearest thoughts, and Leibnitz the clearest words.

The question was, how is *force* to be compared scientifically with *space*. What relation exists between the forces which cause a body to move and the spaces through which the body does move. Both these great men thought that they were discussing a question of real existence, and not a mere question of *words*. Both agreed that the momentum or

force of a moving body varied directly as its mass, and directly as its velocity, and Newton, whose thoughts were clearest, *discovered* and perceived, in his own mind, that a *double velocity* meant a *double space* in the same time, and said that force varied as the space; but the Leibnitzians appealed to experiment, and measured the spaces which bullets urged by different forces would penetrate a bank of earth, and found the spaces vary as *the square root* of the velocity; and therefore insisted that force varied as the square of the space, and that they had proved it by experiment.

If ever there could be a question concerning the truth of reality, or real things, this, at first sight, would appear to be such, and all the philosophers of Europe were divided, and warmly debated the question. It was clear fact, as some thought, opposed to Newton's clear thought or theory. Lagrange, we believe, first suggested, that the dispute was only about words! viz., What shall we call *force* or momentum? But Words are things in science and philosophy, and Newton's thought was clear and true,

and to us who have succeeded as it were to the rich inheritance of words prepared by Newton's thinking, it appears, and is, not only true but *necessary*. A clear-headed modern mathematician cannot conceive otherwise than as Newton thought; he cannot conceive the contrary, or how a double or treble force could possibly be thought to send the same body in the same time through any other than a double or treble space; and he at once distinguishes the Leibnitzian experiments into constantly diminishing forces. He pronounces Newton *necessarily* right, although no such *single* force, acting in space as Newton conceived, is known or proved to exist in external nature.

Newton's thought of *Force* is clear, true, and necessary in the mind, and makes *force* a purely true scientific idea, or thought, or word, measurable by number, space, and time. It is the foundation *thought* or word of Newton's science; but such a force is not a real existence at all except as *thought* is real in each man's mind, and words are real in each man's mouth. We can apply the thought to

deduce and measure the movements of the heavenly bodies, and to predict future phenomena; and so, with Newton's aid, mathematical astronomers compel the assent of those less gifted minds which are practical and not ideal, just as we can apply numbers to make a calculation, or to do a sum, or geometry to measure the length of a distant line, and tell the practical man to go and count, or measure, in order to verify our calculated result, and so convince himself of the truth of our science.

Newton's thought of simple force, therefore, when once clearly perceived in the mind, is as true and necessary as the thought of number, the thought of space, the thought of time; we cannot think of single forces otherwise than as varying directly with the space through which they move a given body in a given time. We test the *utility* of the thought by applying it to predict future or previously unknown phenomena amongst the heavenly bodies. This seems the universal test of pure truth or really true thoughts, viz., the Divine Power to predict future or distant events. And so far

as we are able to predict the future in external nature, so far only may we believe in the external truth of our internal thoughts. But the necessity is verbal necessity.

When, for another example, Cuvier, examining only the jawbone of the opossum of Montmartre, predicted, before the rest of the skeleton was extracted from the stony matrix, that it was that of a marsupial animal, and, in the presence of his scientific friends, proceeded to remove the matrix of stone until all anatomists were satisfied of the truth of his prediction; he gave a proof, to a limited extent, of the truth of his own wonderful thought or discovery, that every part of an organized body possesses some fixed correlation to every other part; which relations, it is the business of the science of organized bodies, to discover, and map out, and to measure, and reduce to number, space, and time. So far, therefore, as human science enables man to predict phenomena, it is true and certain; *i.e.*, worthy of our confident belief, and no further. This seems the only test of *verbal* truth in the sciences of external nature.

When Leibnitz denied the truth of Newton's idea of force and its relation to space, the proper answer was this; by means of this word, by means of a primeval velocity supposed to be produced by a single tangential *force* acting on the planets, and of the *force* of gravity constantly acting by Newton's law, we can *deduce*, account for, and *predict* many new and before unpredicted phenomena in the motions of the planets; our *word* is true.

But we ought not to let our admiration of what Newton accomplished, lead us to suppose that any such thing really ever existed as a primeval tangential force, launching the planets into space with their enormous observed velocities, and in the tangents to their respective orbits. The supposition, or hypothesis, of such a primeval tangential force is a mere thought, to represent the known and observed existing phenomena of the tangential velocities of the planets. This hypothesis, of *Force* varying as the Space, probably at present obstructs the progress of knowledge, though it enabled Newton to prove the force of gravity as a law of nature amongst all the

planetary bodies, and Herschel to extend it beyond the limits of our system. Wonderful as Newton's discovery of the law of gravity was, yet it accounts for only a small number of the motions and known phenomena of the planets. It offers no explanation of their relative velocities in space, or of their relative weights and distances, or of their rotatory velocities on their own axes.

(3.) *Gravity a mere Word, not a Reality.*—Though Newton himself thought and said that he was not feigning hypotheses, but reasoning from and about external realities, yet it is as clear as noonday, that Gravity itself is a mere word, or thought, and the time may come when it shall be resolved into some other word, or thought, and man may become able to show how gravity itself can be made greater or less without altering the matter of which at present we think it is a property. Newton himself latterly guarded himself from being so interpreted, and said expressly, "I do not take gravity for an essential property of bodies,"[1] and he suggested a medium varying

[1] Advertisement to second edition of "Optics." Can the

in density, as a possible "cause of the gravity of the heavenly bodies to one another."

We can already create or increase the attraction of a magnet, without altering the mass, by merely passing a current of electricity in a particular manner through an enveloping wire, and the time may come when we shall be able to increase or diminish the attraction of gravity itself, or show how it may be done, without altering the mass. But the truth we contend for, and which we submit we have proved, is that in all true science we merely invent or discover abstract thoughts in the mind, which more or less perfectly resemble external phenomena, and express them *in words*, which more or less perfectly explain external phenomena to our fellow men. The true and measured thought is *embodied* in a *word*, of which we can speak, but concerning the real things or ideas themselves we cannot speak.

We *conceive* the attraction of gravity, as discovered or invented by Newton, but it is a

effect of electricity passing through a helix enveloping a magnet, be in any way connected with Heat or Gravity?

mere *thought* or word by which we explain to the mind some of the apparent motions of the planets, and which word, *Force* of gravity, Newton first showed how to reduce to measurement by number, and space, and time, and so created, by *deduction*, the science of modern astronomy. Newton's own words for expressing his great thoughts have been superseded by the more effective and shorter words, which we owe chiefly to Leibnitz, the words or signs of the modern calculus. Still, we ought not to suppose gravity *a reality*, which may not be superseded by some better theory or thought, which will explain, by one law, not only the central, but also the tangential and rotatory velocities, and the masses and distances of the planetary universe.

It, no doubt, may sound strange to call the force of gravity a verbal truth, and to say that it is already become a mere idol, that obstructs the progress of knowledge; but, for my part, I have very little doubt that it is at this moment rather a blind, hiding deeper truths behind it, than a truly useful hypo-

thesis, to embody astronomical progress, or scientific facts.

By talking of the *force* of gravity, and nothing but gravity, astronomers have got to talk so much about the mechanism of the heavens, that they half believe they understand our whole planetary system, whilst they are wholly ignorant of the greatest number of the phenomena, and cannot give any explanation of the greater number of the most obvious facts. Not only are the laws of comets wholly unknown, but the most ordinary planetary phenomena are wholly unexplained. Why are the days of our Earth and Venus from twenty-three to twenty-four hours long, or nearly in proportion to their mass and size, but that of Jupiter, which is one thousand times larger, not half so long? Not one of the axal revolutions of the planets can this law of gravity explain in any way. Why has the earth one moon, and Venus, within the earth's orbit, and, again, Mars, without the earth's orbit, neither of them any moon at all? Why has Jupiter, the largest of the planets, only four moons, and Saturn

seven or eight, and Uranus more, some turned topsy-turvy, and going retrograde? Why do all secondaries turn nearly the same face to their primaries, *i. e.*, turn on their axes in nearly the same time that they go round the planet, and yet the planets vary so much between their days, and years, and seasons? Again, why does the moon take a month to go round the earth, and the moons of Jupiter and Saturn go round in a few hours? The reasons for all the relative masses and distances, and most of the motions of the planets, are wholly unknown; and yet astronomers talk as if this law of gravity had taught us the whole mechanism of the heavens! when it can explain neither the velocity of any one planet round the sun, not its own velocity on its own axis.

What should we say of a man who saw the weights of the church clock, but could not explain how it was that one hand went faster than the other, if he proceeded to talk about his "knowledge of the mechanism of the clockwork," as our modern astronomers talk about their knowledge of the mechanism of

the Heavens? The simplicity and humility of Newton have been forgotten by La Place and his successors, for, speaking comparatively, with what hereafter may be known, we know indeed but little of the mechanism of the heavens. Why, therefore, should we talk as if we did?

Gravity, quite possibly, may be the fifth phenomenon of that wondrous pulsating fluid, of which light, heat, electricity, and magnetism are probably divers vibrations, measurable by number, space, and time, and we possibly hereafter may be able to convert heat and light, and electricity and magnetism, into gravity, just as we can now convert heat into light, and electricity and magnetism into each other, and into light. We can take the latent heat of any body, and make it visible as light; we can take light and extract the heat, or find it done for us; we can take electric and magnetic currents, and exhibit them as light and heat, and convert magnetism into electricity, and electricity into magnetism; when we can convert all and each of these four into gravity,

or gravity into these four, we shall possibly have solved the problem of all the motions of our planetary system; and may be able to treat the eccentricity of a planet's orbit as a mere single vibration of that wondrous fluid called Light. Do not the tails of comets teach us that the attraction of gravity is a misnomer, and that gravity is sometimes levity, an immense vibration of that all-pervading fluid Medium? Can that be called the attraction of gravity which sends forth by repulsion a tail of a comet six hundred millions of miles in a few days? It is levity rather than gravity. It is the opposite of gravity. It is possibly the outward pulse or vibration, of which gravity is the inward pulse; but it certainly is not attraction, but repulsion. Do let us cease to talk of the mechanism of the heavens until we know more of their mechanism; and let us consider whether the hypothesis of gravity is not one that has done its work, and taught us central forces, and let us strive to understand circumferential and rotatory forces and repulsions, and not merely the central

forces and attractions; or else, to combine them together into pulse and repulse, so as to account for the relative size, and velocities, and axal motions of the planets and their secondaries, and the phenomena of comets' tails. At least, let us be more humble, and acknowledge our ignorance, for we know the mechanism of the heavens much as the parish pauper who pumps the organ and sees the clock weights, knows the mechanism of the church clock. It was La Place who taught us that proud, empty phrase, "mechanism of the heavens." Newton was more humble. At all events, if man's body had been a vapour, and he had lived in Encke's comet, a physical body as large as the whole orbit of the moon, we might now have been speaking as freely of the sun's repulsion, as we do on earth of the sun's attraction, and we might have spoken perhaps of the vast annual vibration, which carried the latently hotter parts of our comet by attraction closer to the sun than Mercury, and repelled the latently colder parts into the distant regions beyond the orbits of Jupiter or Saturn.

Gravity, therefore, both on the authority of Newton himself, and according to the principle of this work, is a mere human thought or *word*, to express a bundle of appearances, and not anything really existing in external nature. It is not "an essential property of bodies," and the time is probably fast approaching when we shall have to give it up altogether. That time will probably be, as soon as we can bring the internal heat of the globe into measurable relations by means of number, space, and time, with the lengths of our day and year, and the laws of heat, light, electricity, and magnetism.

(4.) *All Scientific Ideas Words not Realities.*—In short, we affirm, that if any man thinks that by the thoughts, words, or things called light, heat, gravity, electricity, or magnetism, or by the *words*, chemical-affinity, polarity, definite-proportion, or substance, matter, cause, life, or mind, or any other scientific expressions, he has attained any kind of knowledge of the *realities* of the universe above him, or of the world around him; he knows nothing yet as he ought to know it.

He stands like a man in a temple of light, dazzled and bewildered by the magnificence of the sight before him, but with his *eyes shut*, and mistaking the flashes of his own dazzled bewilderment for the light itself, which has confused and puzzled his senses. These words, and all other words of science, Dr. Whewell calls *ideas*.

I do not object to the term *idea*, which the wisest men the world has seen from the days of Plato till now, have thought fit and proper to assist the human mind in its search after truth. But the word *idea* is open to the just objection, that it never can be known that A's ideas agree with B's ideas; but it can be known for certain, whether A's *words* agree with B's *words*, because they can say, we do agree, and *our words demonstrate to eye, and ear, and understanding that we* do *agree.* Men may dispute for ever about what they call *ideas*, but if they are careful, they cannot dispute for ever about the *words* they themselves actually manufacture. They can number and measure, that is, make sure of their *words*. They can never measure or make sure of their *ideas*.

No philosopher has ever given, and I say that no philosopher can possibly give, any sufficient reason why we are to stop at the end of the vibrations of our *incarrying nerves*, and think we are disputing, or can dispute, about the unknown something there produced in the mind called an *idea*; instead of going on to the end of the vibrations of our *out-carrying* nerves, and to the effect made by the mind upon the larynx and pen, to the known or knowable effect, about which alone we can dispute—viz., the *word* which the human mind has caused those outward vibrations to create, as an actual factor of human knowledge. The *word* is the creation of the human mind, the evidence of its existence. The unknowable *thing* has passed into the *idea*, and the unknowable *idea* has passed into the *word*; and words are the only things that can be known as they are *in themselves* by any child of man, let him talk as long as he may.

To acknowledge and submit to this truth, is the first step in all true philosophy, and

the object of this work is to establish it beyond contradiction.

The error I am combating, seems to me the true source of all the wretched vain materialism with which the world of man is now filled; at one time Panatheism, at another Pantheism; the two poles between which the materialist perpetually oscillates in doubt, ignorance, and confusion, not understanding the words he uses; but which words prove the real existence of the human mind itself.

If any man says, "Surely I know more of the real nature of this world, when I have learnt the great truths of gravity, or chemical affinity, or chemical composition and reduction, than I did before," I answer, "No, sir, you do not; you have learnt to think with Newton, and Lavoisier, and Dalton, and to use Newton's *words*, and Lavoisier's and Dalton's *words*, you have learnt to think with the great modern astronomers and chemists, and to use their *words*. Neither they nor you know anything more about the realities of matter and the universe than you did before. You have learnt a *number* of appear-

ances, which affect the human senses, and have learnt to give them orderly *names*, so as to speak correctly with your fellow men, who have examined the same appearances, and have agreed to use the same names or *words* to express those *numbers* of appearances. Both they and you are as ignorant of all of the realities in the things you speak of, as ever savage was. You have learnt some new human *words*, signs, or symbols, the breath from our larynx and tongue, or black marks from the end of our pens; and how to make and use those words, signs, and symbols, in consonance and mutual agreement with your well-instructed fellow men, but you have learnt nothing more whatever; and any other imagination of your heart is mere folly, emptiness, and delusion. Why are men for ever to deceive themselves, and shrink from the clear, the notorious fact, that all human truth can only be true words and symbols, mathematical truth?

It is passing strange to see how the possession of a few *words* and symbols reduced to order, mere signs or tickets to assist the

human mind to register a *number* of external appearances, of the real nature of any one of which man is wholly ignorant, puffs up the vain animal to think he has at length attained the mystery of nature; and he talks of attractions, and forces, and affinities, &c., as if they were some *real things* themselves, and not mere human words, mere signs and symbols made with his own tongue and pen, to assist his own and his neighbour's memory of the wonderful mysteries and unknowable operations which God has permitted them to glance at. They seem to me like pert sparrows hopping on the beam of a steam-engine, and mistaking its proper motion for the effect of their own proceedings, in condescending to fly about and take notice of its parts and motions.

All scientific *truth and certainty*, therefore, is verbal truth and no more, and depends on *deduction*, and the truth and certainty of the first assumption, and of each step afterwards demonstrated. The *value* and *utility* of all science may depend on *induction*, but induction can give us no truth whatever. Let us consider this more closely in another chapter.

CHAPTER VII.

INDUCTION, DEDUCTION, TRUTH.

(1.) *Knowledge Begins with Sensations and Naming.*—Although I have demonstrated that numbers may be deduced strictly *à priori*, from the mere admission that some knowledge exists; and that what is usually called by metaphysical writers, generalization or abstraction, may be more truly represented as an admission of ignorance, instead of an abstraction of knowledge, yet I would not be understood to mean that the first elements of knowledge are usually, in fact, learnt by deduction; or that the more general is commonly learnt before the less general, or the abstract before the concrete. Man is body

and mind, and the body comes first, and the mind afterwards. He was first formed of the dust of the ground, and afterwards God breathed into his nostrils the breath of life. The tree of knowledge is tasted through the body, but the pure fruit of that tree is not body-like but mind-like.

The child of course learns to count by his fingers or by an abacus, or by things visible or things tangible. I have heard a child who had learnt to count far beyond ten, exclaim to its mother, "Oh! mamma, you have a short finger." It was ignorant of the difference of its own fingers, and went round the room to see if everybody had short fingers like its mother and itself, when it had been shown its own little finger. It was teaching itself by induction, and was not inclined to believe the marvellous fact that all men had little fingers, till it could find no instance to the contrary, asking about each member of its family in succession, and going to several, five or six in the room, to see with its eyes, that all had little fingers. I saw the process and helped to satisfy it.

This, in learned phrase, was the highest species of induction, "*post negativas tot quot sufficiunt super affirmativas concludere.*" The little philosopher was a little girl not five years old.

Take another instance mentioned by Aristotle of the Greek children calling out "πατηρ" to a stranger in the street, and which same thing may be easily verified with English children in their nurse's arms, calling out "papa" to a man as he goes by. This is generalization, or making a general term. So a child of two years old will persist in calling the new nurse by the old one's name for many months. So I have asked a Scotch peasant child, "Whose house is that?" and received for answer, "It's the laird's hoos," but the name of the laird it could not give. So Adam Smith remarked, that a peasant knows no name for the rivers running by his door, except the north river or the west river, &c.

Is this process of naming, *abstraction* of knowledge as philosophers generally say, or want of perception, say ignorance of differences? I think the latter. The child has for-

gotten the individual difference, or does not perceive the difference. The dress or look of the men, the acts of the nurses, deceive the child, and it calls out the word that has procured attention or kindness. In short, there is no novelty in all this. Whatever passes in the child's mind, we are wholly ignorant of it; but it has been seen for 2,000 years, that all knowledge begins with single bodily sensations, with singulars, and is built up synthetically by induction, and recorded by giving general names. Knowledge is not obtained by abstract deductions, at the first. The absurdity lies, however, in therefore concluding that Truth is founded on Induction. That, I say, is a most ridiculous *non sequitur*.

(2.) *No Truth and Certainty from Induction.*—Let us grant the utmost that can be asked. There can be no doubt that all knowledge *begins* with sensations, which are transformed by the mind, judging by induction from numerous instances, into thoughts and verbal images, or *words*. It is equally clear that all science, which is knowledge rendered accurate by man's carefulness, begins with the

practical and concrete, and is gradually transformed by men of science into the pure and abstract.

There cannot be a rational doubt, in my opinion, but that geometry was at first what its name implies—land measuring. That a straight line was a stretched string; that the first definition of a straight line was, in all probability, "the shortest line between two points," derived from the actual concrete process of stretching, and so straightening a land measuring line, and finding it less than any other; and that the axiom "that two straight lines cannot enclose a space," was arrived at and verified by stretching two lines from the same *visible* point. An angle was, no doubt, at first the corner of a field, and so on through all plane geometrical words.

What then, is Mr. Mill right after all? and is pure geometry founded on the induction of generals from numbers of particulars, and its certainty and truth founded on induction? That, I say, is Mr. Mill's own most absurd *non-sequitur*, a mere confounding *the use* of the body, with *the truth* of the mind;

the use that we feel and see, with the truth that we think and speak. It is, in fact, merely a new form of that old materialistic snake which I have tried to exhibit and scotch throughout these pages; that wretched shuffle, which calls and desires to call the thinking and *non*-thinking thing by the same name, to call A and *not* A by one and the same term, to call truth and *not* truth simply Truth, and then, to pass this process off for logic and philosophy!

Induction is as the body, and Deduction as the mind. Induction and the body may give us the materials for many sensations and useful guesses, but cannot give us one truthful thought. Our *calling* the process of induction a method of arriving at truth, or *calling* certain conclusions inductive truths, will not make them pure truths. Truth, *pure truth*, is the province of deduction only, and induction never yet gave us one pure truth, or anything more than a probable guess; or some very probable explanation, *provisional* only, till a better is found out.

Let it be granted, therefore, that the senses

are the avenue to all knowledge whatever, as Aristotle said long ago. Induction is the process of the mind, gathering one conclusion from many sensations, whether with or without crucial experiments, negativing a sufficient number of possible explanations. The conclusion itself is a *mental* conclusion, and the process is a mental process, entirely removed from the senses and from sensation; it is the work of the higher reason, of the human imagination and of the highest mental faculties, and is duly completed by embodying the inductive thought in a *word*. Well, then, have we got a truth, a *pure* or certain truth, whatever number of crucial experiments, whatever number, *tot quot sufficiunt*, of negativing experiments we have made? I say, no! Man's mind can never *exhaust the negative*. The highest induction is *post negativas tot quot sufficiunt*. But how are we to exhaust the negatives? A is A, but *not A* is infinite. Every induction is an attempt to prove the negative, that NO *other* possible arrangement, *no other* possible cause, *no other* possible explanation can exist or be given. It is that

very argument from inconceivability, upon which, on other occasions, Mr. Mill can be so severe. Every highest induction includes, and is founded on this principle, that we have *tried* every other conceivable explanation and negatived it, but this is impossible to man. Every induction, therefore, gives us only a *probable* guess, not truth. It is as different from *pure* truth as man's body is from man's mind. Men lose themselves in the concrete and sensuous, and worship the materialistic idols their senses have created, and then confound what is only probably true, in relation to man's senses and faculties, with what is *really* true and *necessary*, or deny the existence of necessary truth altogether.

It is the labour of a logical Sisyphus to roll up words, pretending to establish "the justification of the scientific method of induction as against the unscientific, notwithstanding that the scientific ultimately rests on the unscientific." [1] All the argument in the world will never prove a negative, and

[1] "Mill's Logic," vol. ii., p. 102.

the highest induction is founded on proving a negative.

The scientific, we say, does not rest on the unscientific, it rests on the first assumption. From that it hangs, or ought to hang, by positive links, strictly proved to mental demonstration, otherwise it is only *pseudo* scientific false accuracy, it is not truth: it is not *pure* truth. But, on the contrary, if every step be so demonstratively proved *by deduction*, then the conclusion is as necessary, that is as never-ceasing, as is the first assumption. It hangs on the first one or more assumptions, and its necessity can never, of course, exceed the never-ceasingness of that first one or more assumptions from which it is deduced.

By Induction we gain what we feel to be *useful*; by Deduction we gain what we know to *be true*. No knowledge is strictly true or certain, that is not strictly deduced, and its truth and certainty depend entirely on the truth and certainty of the first principles assumed, and from which it can be strictly deduced. *Induction* is mere mental guess-work from *bodily* sensations, partaking of all

the imperfection of the human senses, sometimes right and sometimes wrong, words adopted because useful to the mind, as resting-places till the mind can reach something higher. *Deduction* is the work of the soul, of the mind itself, working with *verbal* abstractions. All truth and all certainty comes from the soul and mind by deduction. No pure truth, no certainty, can ever come from induction; and a guess, a probable guess, is the highest conclusion, which by induction, man can arrive at.

The sensuous is transformed into the intellectual, and the intellectual into words. The rude, inaccurate concrete is mentally transformed into the pure and true abstract; into that Platonic divine ideal which is perfect, true, and never-ceasing; into words, signs, and symbols, which can never be false. Land measuring was not pure geometry, was not pure truth or certainty, but only *sufficiently* true, *i.e.*, *not true absolutely*, but sufficient for some practical purposes. There it must have stopped on the earth, confined to a few rough contrivances for the comparison of distant fields.

This is not truth, but rule of thumb truth, as one can often see an accurate woman measure with her fingers, as well as a shopman with the exact length of Norman Henry's *guard* arm, which, by Act of Parliament, became an English yard. But has this any resemblance to pure geometrical or numerical truths? It is not truth at all; though it passes for rough, rule of thumb truth, sufficiently true for practical purposes.

But when the mind has formed the true and pure ideal out of the impure and untrue actual, then it can develop by verbal deduction new and altogether unforseen and unexpected relations altogether remote from the observed actual; and at first, and often for ages, the deductions remain without any apparent utility, or any connexion, or application to sublunary matters. Ages after their first development as *Truth*, they turn out to be *Useful*. Who ever tested by any induction the truths of the ellipse or hyperbola, whose properties were elaborated 2,000 years ago by the Greeks? The properties of the ellipse thus discovered by pure deduction, remained

practically useless for 1,800 years or so, till Kepler and Newton applied them to the earth and the heavenly bodies above and without us. The hyperbola, I believe, still remains without much practical application of its most remarkable properties, though they were discovered by pure deduction so many centuries ago. Surely, the man is trifling with words, or is wholly ignorant of pure mathematics, who asserts that the truth and certainty of the properties of the ellipse and hyperbola depend in any manner whatever upon induction. Induction had no more to do with their discovery than the sense of smell with a musical symphony. The smell may have told a blind fiddler where to find his rosin, and some men may say, if they choose, that the blind man's music was arrived at from the smell of the rosin on the fiddle stick by induction! but that is merely giving a new meaning to the word induction not worthy of discussion.

The hyperbola is the curve which fluids assume in the capillary tubes of organised bodies, and, therefore, actually exists in the Human Brain. It is a curve with its centre

outside, which requires to be balanced with a similar curve on the opposite side of the centre; a curve which approaches indefinitely near, but never attains true contact with, the right lines, the asymptotes, that pass through its centre. The hyperbola possesses many more resemblances to the course of the human mind and reason towards *Truth*, than the common application of its name to hyperbolical expressions and arguments.

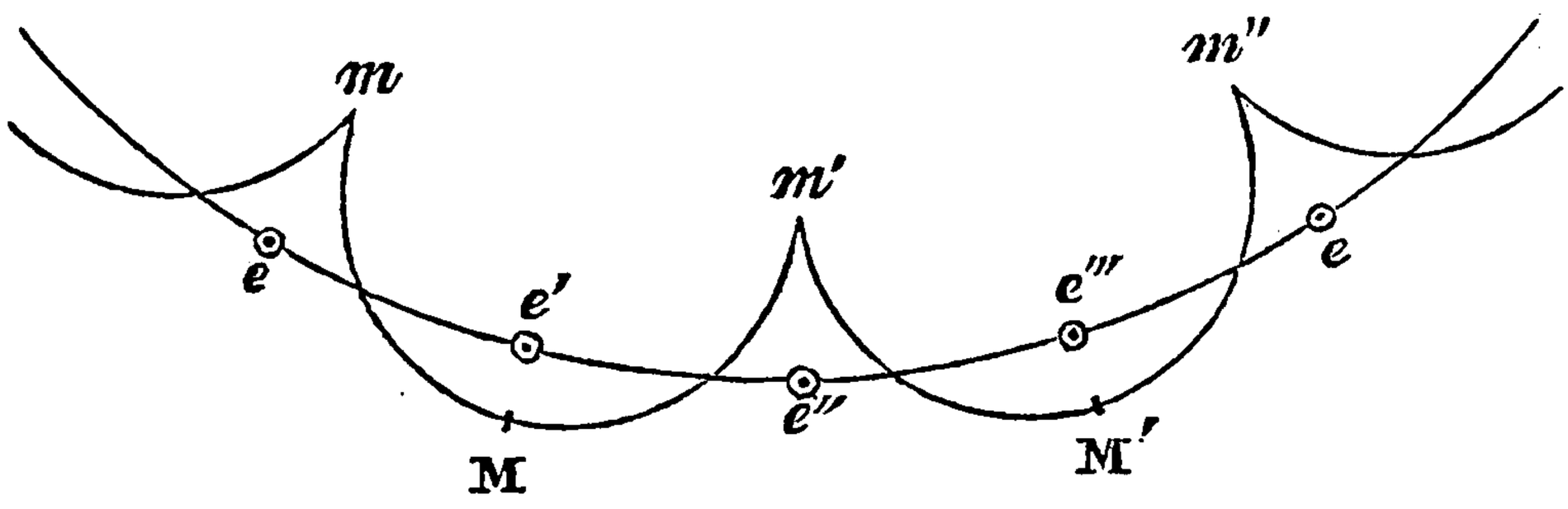
But induction is to deduction, as the human body is to the human soul, and this is not a metaphor, but an analogy. Induction can never be, so far as we know, wholly true. It can never give pure and perfect truths, but only partial and imperfect bodily truths, guesses in relation to the human senses, suggestive of *words*, mere resting-places for the mind. At last the resting-place becomes a sleeping-place, and the induction a dead body, stopping up the course of science.

(3.) *The Ptolemaic System an Induction.*—The Ptolemaic system was an induction, and up to a certain extent, in a certain sense, a sufficiently truthful and useful induction.

Nay, for some purposes, as, for example, to calculate eclipses, if we had to begin at the beginning without tables or telescopes, it would be more useful than the Copernican system, even including Newton's great discovery of the laws of central forces. Motion is a mere relation, and to the eye of the modern mathematician, it is wholly indifferent and irrelevant, which of the bodies stands still and which moves, or where the centre is to which the relation must be referred. But we cannot prevent puzzle-headed men, who have not studied deeply enough, from seeing a puzzle where there is none, or from shutting their eyes, so as to let in only half the light.

A few years ago, a learned Inspector of Schools, by shutting his eyes to the sun, as the acknowledged centre of our planetary system, persuaded himself and a great many equally puzzle-headed people, that the moon did not turn on its axis. In reference to the earth, she does not turn, but in reference to the sun, the acknowledged centre of our planetary system, she does. It would have been quite as wise, and just as true, to tell us that the

moon does not go round the earth in an ellipse, but performs vagaries in space more like the Vandyke work on a lady's collar[1] than an ellipse or elongated circle; or if a person were to tell us that the earth does not



[1] It is impossible to put upon paper anything near the moon's actual motion, so far as known; but the above vandyke skipping is nearer its true motion than a perfect ellipse, for if m m′ m″ be three new moons, when the moon is between the earth and the sun, and M M′ two full moons, when the earth is between the moon and sun, and E E′ E″ E‴ positions of the earth at new and full moon respectively; while the moon has been travelling from m to M, the earth has travelled from E to E′, so as to get between the sun and M at the full; and so, by the time the moon has moved to the next new moon at m′, the earth has got to E″, and the moon has then to come back again, and so on; so that having regard to the sun, moon, and earth, the actual path of the moon in space is very far from, and not the least like an ellipse or elongated circle, but more like vandyking on a lady's collar. But the man who would thence conclude that the moon does not perform an ellipse round the earth, and that Kepler and Newton were wrong, is simply ignorant, and must try and learn better what is meant by the composition of motions, and what it was that Kepler and Newton actually discovered. Dr. Brinckley is my authority for saying, that for the purpose of calculating eclipses, without tables or telescopes, the Ptolemaic is more useful than the truer Copernican System.

go round the sun in an ellipse, because, as Sir J. Herschel tells us, she performs "a complicated spiral" in space, and an ellipse is a curve returning into itself, and to the same point of space; but that the fact is, as is well known, that the earth never comes back at the end of its annual circuit round the sun to the same point of space, but to a different point, and so never completes its ellipse; *ergo*, its actual motion is not an ellipse; and, therefore, Kepler and Newton were altogether wrong! This, in fact, would be no worse reasoning, and more justifiable than Mr. Mill and Mr. Spencer's trash about pure geometry; because to see its falsehood and absurdity, requires far deeper reading and more mathematical knowledge, than to see that the asses' bridge does not depend for its truth and certainty "upon induction," and is not *proved* "by an intuition" from any particular figure whatever.

(4.) *Utility and Truth.*—As the senses and body of man are dull and imperfect, and can never make a perfect instrument; so induction can never give man a *perfect* truth.

The highest induction, as we have said, is founded on proving a negative, which is impossible. Mr. Mill admits this in Causation: "We are, *in no case*, empowered positively to conclude that the addition of some new antecedent *might not* entirely alter and subvert the accustomed consequent, or that antecedents competent to do this *do not exist* in nature."[1] This is true of the very highest induction; and however numerous the affirmative instances and the negativing experiments, a *miracle* is possible always.

Induction, therefore, on Mr. Mill's own authority, never gives us *pure* truth and certainty. Its conclusions, though called inductive truths, are not and never can be *truth*; and should not be confounded with Truth. They are practically *useful* only, and not strictly *true* and certain. It is otherwise with deduction, which can and does give us perfectly *true* and *certain* conclusions, though not with regard to any existences external to our own minds. The truths of arithmetic and pure geometry are perfectly pure and certain,

[1] "Logic," vol. ii., p. 349.

'and 'all pure mathematics gives us perfectly pure and certain truths, altogether true and necessary, or never-ceasing; *truths* which could not be otherwise than they are in any intellect whatever. But this is because they concern mere human imaginations, human words, mere *creations* of the human intellect itself. The units and symbols of arithmetic, and the lines, angles and figures of pure geometry, are pure mental existences. Euclid affirms nothing concerning anything existing externally to the human mind, however *applicable* to all external existences, but merely concerning mental imaginations embodied in *defined words*, abstract existences in the mind only of him who can create them. The relations of mathematical lines without breadth, of surfaces without thickness, are the mere creations of the human mind itself. The perfect units that an arithmetician imagines are merely mental existences, and their relations, where the mind clearly perceives them, are unchangeable and never-ceasing, *i. e.*, *necessary* in every intellect able to create them. Necessity is not "unconditionalness," but never-

ceasingness. The necessity follows from the first creation of the abstraction in the human mind, it applies to no other than to the intellect that is able to create the abstractions.

To the mind that has created for itself these abstractions, it is self-contradiction to suppose them or their relations changeable. A man who has created in his own intellect, perfectly equal units, not only cannot conceive them or their relations destroyed, but he cannot possibly alter their relations when once clearly known. No amount of intellectual exertion can make such a man suppose or conceive five and three to be nine. It is not that it is merely inconceivable, but it is *self*-contradiction. I cannot stand on my head, or believe that I do so, at the same time that I am standing on my feet, I cannot deny my own existence.

It is not only inconceivable or impossible to a mathematician, but it is positive self-contradiction, to suppose the square on the hypothenuse either greater or less than the two squares on the sides of a right-angled triangle. It is a clear, positive, self-contradiction, to think the contrary, after once

admitting the definition of parallel lines. To tell a man who sees this as pure geometricians usually see it, that it is a mere habit, is like telling a man that he could and does walk on his head, at the same time that he knows that he is walking on his feet, and that it is a mere habit his supposing that he walks on his feet, or that of two things both cannot be first. The appeal is not merely to inconceivability, but to positive self-contradiction, to the denial of a man's *own* existence.

Here is where concrete materialistic logic and philosophy depart from truth and certainty. They confound *truth* with *utility*, they confound the human mind with the human body; the pure creations of *truth* in the mind, with the imperfect sensuous existences, which the body feels to be *useful*. They confound the pure *truths* of strict deduction with the imperfect truths, but useful guesses, of the highest induction. In short, they desire to call and do call A and *not*-A by the same name, the sacred name of TRUTH.

Now, the *utility* of all abstract conceptions entirely depends on our being able to find in

nature representatives of our abstractions, and on our being able to reduce them to measure, by number, space and time. A measurable fixed unit in external nature is essential to *utility*, but not to *Truth*. When the Arabians, for example, measured an arc of the meridian in the sixteenth century, and recorded the result in barleycorns, the *utility* depends on the certainty of barleycorns as measures of space. The uncertainty of the measure renders the proceeding of little *utility* or value to us, but does not in any way affect the abstract *truth* that if the earth is a sphere, then measuring the arc of a great circle will tell us its size. The *truth* of the abstract reasoning is quite independent and wholly unaffected by the *utility* of its concrete application. An accurate measure of space has remained a desideratum down to the present day; but whether we actually measure with the length of a pendulum in a fixed latitude, or as Englishmen still do in common matters, with the length of Norman Henry's *guard* arm, now called a yard, cannot affect the pure truth of our abstract reasoning.

It is, therefore, wholly unfounded, that any *true* "consequence in pure geometry follows from the proposition or *first principle, that figures answering to the description of a circle exist in external nature.*"[1] The *utility* of geometrical deductions follows from this principle; but their pure, abstract, perfect, and necessary *truth* is wholly independent of it, and bears no relation to it whatever, no more or nearer relation than the abstract thought in my mind bears to another man's body. The conclusions of geometry are *true* and necessary, and are quite independent of the real external existence of any thing in nature called by men a circle; the *utility* of those conclusions does depend on such external existences. Pure *truth* is in the mind alone; *utility* has relation to the body and external nature: *Inductive truths* are only useful guesses, but pure deductive truths are not only true, but wholly unchangeable and necessary. But the necessity or never-ceasingness can never be greater than the truth and necessity of the first abstract *creation*, the first assumption,

[1] "Logic," vol. i., p. 286.

from which the deduction hangs by necessary links of demonstration.

(5.) *Dalton's Law deducible and necessary Why? a demonstration of it.*—Take, for example, Dalton's illustrious discovery of definite proportions in chemistry; the law that the *ultimate* particles or atoms of chemical substances combine in definite proportions. To any man with a mathematical head, to a man like Dr. Whewell, for example, the mere statement of the law is, and must be, not only manifestly an inductive conclusion from Dalton's experiments; but by assuming the *term* ultimate particles, or *atom*, it can be made and becomes a mathematical, a *pure*, perfect, and *necessary* truth. It can never cease to be a truth in any intellect whatever. Mr. Mill lifts up his hands, or at least his pen, in astonishment, at such a daring statement from Dr. Whewell, as that Dalton's law is a necessary truth. But the confusion of materialistic logic, or its critical sneers, or wonder, cannot enable a tolerably clear head to admit self-contradiction. The law is easily demonstrated by the inverse method. Thus, for example:

Proposition.—*If A, a chemical substance, combines with B, another chemical substance, to form C; the ultimate particles of A combined in C bear a definite proportion to the ultimate particles of B combined in C.*

Proof.—For, let *a* be any ultimate particle of A, and *b* any ultimate particle of B, and suppose the contrary hypothesis possible, viz., that *a* combines not only with n. b to form C., but also combines with (n + n′) b to form C. We then have a particle of C = a. (n + n′) b. But this is not an ultimate particle of C, because by the hypothesis we are given a less particle, viz., C = a. n b. Therefore, not being an ultimate particle of C., the particle a (n + n′) b can be divided. But every particle of C must remain C till we get to the ultimate particle of C, therefore in the division of the particle a. (n + n′) b, the particle *a* itself must be divided, and *a* given as the ultimate particle in the hypothesis, is not an *ultimate* particle, which is absurd, and a self-contradiction. Therefore the contrary hypothesis is absurd. Therefore every ultimate particle

a can only combine with a definite proportion, viz., n b, to form C. ergo, &c., Q. E. D.

If materialistic logic cannot see the force of this reasoning, it is to regretted; but we cannot be asked to contradict ourselves to suit the elastic logical perceptions of self-puzzled materialists; or, as Dr. Whewell justly says, to believe in a world of confusion and contradiction, as the handiwork of God! Not only the intellectual but the moral perceptions of mankind reject the contrary absurd hypothesis, and establish the *necessary truth* of Dalton's great discovery.

But now, in what respect, and why, is Dalton's law not only true but *necessary?* It is wholly founded on the fundamental assumption that all chemical substances have *ultimate* particles, or atoms, indivisible. From that it is strictly deducible, as I have shown and demonstrated above. We invent and manufacture the word, "*ultimate-particle*," or atom. Our demonstration, and the whole meaning and force of Dalton's law hangs upon that *word*. The mental conception represented by that word, *ultimate-particle*,

or atom, is a pure mental human *creation*. Of the wondrous constitution of things *in themselves*, we know nothing and affirm nothing. Like children standing on the shores of the ocean of truth, we fling in our little pebbles, and strive to *count* the ripples that they make. Newton's own illustration of his own wondrous discovery of the law of the heavens above us, cannot be better or more properly applied, than to Dalton's almost equally wondrous discovery of the law of the minutest particles of unorganised matter in the world beneath our eyes. Yet so considered, that law is not only true, but *necessary* and never-ceasing.

But concerning that external world itself, Dalton's law, arrived at by induction, or so deduced as aforesaid, does affirm nothing. It is a verbal truth only, which we may freely apply until it shall be superseded by some abstract generalization, still wider and still more necessary, where the conception, or word *ultimate-particle*, or atom, may disappear from science altogether, as wholly insufficient and inadequate to represent the

phenomena which He, who is holy, just, and true, may think proper to permit some of his children to discover and understand.

It never can be too often or too strongly impressed upon men, philosophers or not, that all human truth is verbal truth only. Inductive or deductive, it is alike in that respect; call it *truth* or call it *utility*, it is and can be only words applied to practice.

It is absurd to ask whether man's body or mind is most useful to knowledge, or in order to gain knowledge. Without a body, *i. e.*, without sensation, "He can neither know nor learn anything." Without a mind, the same result must follow. It is equally absurd to ask whether induction or deduction is most useful as a guide to knowledge, *i. e.*, true knowledge. In man's present state, it is imposible to say which is most useful.

But, nevertheless, induction only collects the crude materials, as the body collects the crude sensations, from which deduction, like the mind, selects and purifies some few fundamental truths, and thence leads the way along the paths of mathematics to the most

beautiful and unexpected mental, and verbal, and bodily discoveries, both true and useful, and applicable to external nature; *true*, in words only, but useful and applicable to human wants and human doings in the world and universe around us.

NOTE.—The objection that chemists are forced sometimes to divide an indivisible atom, is not fatal to Dalton's theory, as Sir J. Herschel has remarked.* Proportion is not affected by division, however often continued; but throughout nature it is the apparent exceptions that should be curiously examined to suggest deeper views of her operations. We must try and measure the anomaly numerically. Water and bismuth seem to differ from all other substances by expanding on becoming solid from cold. Can the amount be measured, in proportion to their weight or density, numerically? It is from such examples that deeper views of the constitution of matter may be obtained.

* "Essays," p. 232.

CHAPTER VIII.

LIFE AND MIND.

(1.) *An Example of the PRODUCT Hypothesis in Verbal Discussion.*—Let us illustrate by an example, if possible, what we practically mean by calling abstract general terms numbers, *products* of abstract factors; each factor being some supposed likeness of the unit adopted or chosen to mark out and limit the class. Let us select those very abstract terms LIFE and MIND. Certain philosophers of the present day earnestly seek to establish the doctrine of the identity of Life and Mind; not that mind possesses some higher life, *analogous* only to the lower life of the body; but that the human mind has grown and been de-

veloped by some law of vegetable, and animal, and nervous growth. In short, that man grew on this earth according to some law, out of a lichen, a zoophyte, or protozoon!

The two classes here proposed for comparison, are what men call *living things*, and what men call *mental things*; not the mental acts of an intelligent spaniel, an ant, a bee, or a beaver, adapting their actions and materials to the peculiar circumstances in which they happen to be placed by nature, or may for experiment have been placed by man; but that higher Mind or *reason*, that imagination, those sentiments of benevolence, veneration, justice, or other higher human qualities influencing the human Will, which in all ages, from Aristotle downwards, have been recognised by intelligent men, as *distinguishing* mankind mentally, from the lower animals, and which mental sentiments or principles I would denominate, the *Human Will*; but which is commonly called the higher Reason, or the human Mind.

It is of course as old as the logic of the Greeks, to call in every discussion for a defi-

nition, consisting of the genus and essential difference; two words to limit the word or thing proposed for discussion. But if my theory of all words being *numbers* and *products* be well founded, that theory which I insist I have demonstrated beyond possible contradiction by any man who speaks and can add thoughts or words together correctly; I have entitled a reasoner to ask for, and demand expressly, *every* abstract word or *factor* which is to compound the thoughts of, or words Life and Mind, in this discussion. The likenesses of living things *in general*, and of human mental things *in general*, must be given us, till we arrive at simple fundamental thoughts, or indecomposable words. 'What likenesses, I ask therefore, do you *mean* to say, *produce* the thoughts, Life and Mind, if you want us to agree with you? Don't beat about the bush for a grammatical definition, but jot down all the *factors* which you say properly produce in us these deep and abstract thoughts, *life* and *human mind*.

Let us turn up, therefore, almost any good book on physiology, and let us just put down

some of the best established fundamental thoughts, or indecomposable abstract words, recognised by almost all intelligent observers of Life, as the likenesses possessed in common by all living things. Every living thing has, they tell us—

Substance, or matter and form,
Organiza*tion*,
Absorp*tion*,
Assimila*tion*,
Secre*tion*,
Reproduc*tion* ;

So far *vegetable life*.

Add Sensa*tion*, for a zoophyte :

Add Nervous *action*, or intelligence, } for animals.

Your word *life*, or living thing, as distinct from human life, including Mind, or man's higher Reason or Will, includes all the above deep and difficult things, thoughts, or words.

What do we know about all these deep and difficult actions and things? Cuvier and Owen will fear to tread where Herbert Spencer, Mr. Darwin, and the "Westminster Review," will run a muck.

Now, if the reader will patiently look over our list of the above, to some extent, recognised *factors*, producing the thought or idea of *Life*, or the word living thing, he will find *seven* words ending in *tion*, each of which implies some secret ACTION or process, proceeding actively in every living being, five actions in vegetable life, six in a zoophyte, and seven in an animal, all different, for which *actions*, physiologists have been compelled by phenomena, by facts clearly presented to their senses, to invent and adopt new and distinct *names*, in order to be understood. Of each of these secret actions, the most learned physiologists are profoundly ignorant! who can pretend to tell us any *truth* concerning the difference between the adjustment or *arrangement* in a dead crystal, and the adjustment or *arrangement* called organization in a living body? One simple-minded man did indeed think that he had produced a mite in his galvanic battery, when he expected a crystal of alumina to appear. If the *Acarus Crossii* is to be received as a distinct species into the animal kingdom, we must go back to crystallization. But what

do we know about the growth or production of *organs* in living beings; the *absorption* of the peculiar food by the roots or absorbent vessels; the judgment, the discrimination exercised in seeking and absorbing only the *proper food*, and so on; each action of the living body as it were widening in its miraculous circle, and becoming more and more obscure at every step, more obscure to the patient, and thoughtful, and conscientious observer.

But if the light within is darkness, possibly the darkness thinks itself enlightened by the long *words* in which physiologists tell the thoughts produced in their minds; the long *words* which express that something, that has passed along our minute incarrying nerves into our infinitely minute nervous brain cells; and there been inspected and recorded by man's intellectual faculties, and then sent forth once more along our minute outcarrying nerves, to the larynx and the tongue, or to the ends of our fingers and the pen, and turned into long *words*.

But all this manufacture of words is only

the first process of the human intellect, that intellect which to some extent man shares with the ant and the spider. We have not yet reached the threshold, or I had almost said within an infinite distance of the threshold of the pure human Mind or higher Reason, those *higher* sentiments, that human Will which shakes us with love, veneration, justice, wonder, remorse or FEAR, if it can yet commence in the MIND of the philosophic reader. Yes, FEAR! the beginning of wisdom and knowledge, that fear and awe of God, that should agitate your nerves as you contemplate the wondrous scene without, and the more wonderful scene within your brain, and should bring you down in humble adoration of the *Being*, whose laws of mind and matter you have so often wilfully violated; ay! tens of thousands of times, hating where you should have loved, despising and scorning where you should have venerated, violating justice and truth in thought, and word, and deed; and for years, from boyhood to manhood, wilfully stifling remorse, and shutting your eyes to the brink of that eternity on which you have

always been standing. Oh! may we yet be able to say, "I will arise and go to this Father, and will say unto Him, Father, I have sinned before Heaven, and in Thy sight, and may we find peace, that peace which can make us, not as others are, which have no hope."

But to return to our discussion of *Life*. Is there any resting-place between considering life and mind, wholly distinct; and the other theory, that every particle of matter, organised and unorganised, possesses intelligence enabling it to *think* and to select and make choice of its companion particle or particles, in the same way as a man selects and chooses his own companions, books of words, bodies of things, or minds of persons, to act and react upon his own mental frame, for his own mental pleasures and moral purposes? Why are we to begin with life and organisation? Why not go back to crystals and unorganised matter? The particles of a chemical mixture, of almost any kind, for example, exhibit affinities, likings, dislikings, preferences, and perversities, quite different, but quite as strange and mysterious, and causally unknown, as do

the absorbent vessels or the organs of a living being. The facts and phenomena we see and observe; but the reason and meaning we hide under a word—the word *chemical affinity*; a disposition to unite; elective or *selective*, and, moreover, *definite*—under Dalton's law numerically proportional; actually mathematical, and, as I have shown, *ante* p. 207, and absolutely *necessary*, if we admit the word ultimate *particle* or atom to mean anything at all.

Oh! but you will say, life is not *definite*, it is not chemical affinity. Life suspends chemical affinity, more or less. Life selects, but not in *definite* proportions. The organs are not the same, and the absorption will vary a little, even in the same living being at different times. The assimilating process will vary; the secretions will vary, even in the same organs, within certain limits, and at different times; there is a variableness in *Life*, and not a definiteness. In short, there is a tendency, one might say, to *free will*, within certain limits, in every living body. And when we come to sensation, and nervous action, and to

intelligence in animals, there is more and more tendency to free will or to free choice, within certain limits, instead of to any hard numerical proportions or *definiteness*.

The way in which life is supported, and is continued or reproduced, is not definite, but varies more and more, the higher the kind of life examined. The hard mechanical necessity of living on one spot, and dying there like a plant, if its appointed food is not brought to its absorbent vessels, gives place to locomotion. The young of a fixed zoophyte will play and disport themselves, till they settle down into the fixed sponge! Perfect animal locomotion follows, till at last all life is spent in the search for animal gratifications. Well, it seems that a discussion of life tends rather to *free will* than to necessity. As life developes before us, in the succession of natural living creatures, it does seem more like the true and real development of *absolute free will*, than like a procession to any iron-like or unbending necessity. We go on from lower life to higher life, gradually increasing free will, until nerves do not seem to follow any

absolute laws whatever, but seem gradually to be able to exercise greater and greater free choice or will. "I confess," says Agassiz, "that I cannot say in what the mental faculties of a child differ from those of a young chimpanzee."—*On Classif.*, p. 89.—"But then," he adds, "organisation cannot be caused by physical agents; it is utterly impossible to maintain the idea of any genetic connexion between them. A fish, a crab, a mussel, living in the same waters, breathing at the same source, should have the same respiratory organs, if the elements in which these animals live had anything to do with shaping their organisation."—*Ibid*, p. 93. In short, life varies and rises, and free choice or *free will* extends and developes itself.

Here we have only glimpsed at the wonders of absorption by endosemose, and at the growth of varied organisation, under like surrounding circumstances, the two first only of our seven selective actions clearly involved in animal life. Who can describe the varied mysteries of *assimilation* to each different living being, selecting what it will assimilate

to itself and its tissues? or the still more varied mysteries of *secretions* within the bodies of each living being, to produce its various parts; each selecting organ selecting its own peculiar want, and working out its own peculiar produce by its own functions, varying from time to time its *modus operandi*, so as to produce as near as may be even a deformed likeness of the type it prefers? Then come the deeper mysteries of the *reproduction* of plants and animals, widening and widening in difficulty as we contemplate infinitesimal germs. We find embryos insheathed in embryos, and germs enclosed within other germs; yet, neverthless, all endowed with some unknown power to select and choose the peculiar matter which they like, from the matter which they do not like, whereby to nourish the youthful being, "after its kind."

But it is needless, nor am I at all competent to proceed with any proper and full description of all the other *free* actions of life and intelligence in the animal kingdom, below the moral *mental life* of man. No one who thinks, or has even casually studied the ordinary won-

ders of animal life and animal intelligence, in physiological works, can possibly suppose that our knowledge of life, and its processes and actions, is already such as to enable us to form the most dim guess of probability, whether the nervous intelligence of an animal could develop itself into the reason and higher powers of a moral and religious-minded man—of, for example, a Socrates. But, one thing does seem more probable than another, and it is this: that all the marks and symptoms of a free and independent *will* do *increase* as we rise higher and higher, until we reach mankind, whose individual arbitrariness, whose absolute free will, within the limits of his faculties, would be established by analogy and induction, if any such question can be proved by induction or by analogy from the life of the lower animals.

Life, therefore, seems to lead us up to the human mind and human free will, not *by growth* of particles, but by a kind of *analogy*. If we find choice and selection of activity existing in every department of nature, widening, extending, and increasing its free choice and free action, as we rise through the

vegetable and animal kingdoms, till we find it culminating in man—the most fickle, and changeable, and uncertain being upon earth—it must require a most marvellous defect of reason, for this being to think that the law of nature has stopped short with him, and that he is subject to some iron necessity, instead of taking and arriving at the very opposite conclusion; that *free will* and free choice, the absolute power to select his own modes of action within their limits, must have received in man, its greatest worldly development, whether as a reason for his responsibility or not. But how is this nervous *free will* to be compared with the higher mental freedom, the moral qualities and powers peculiarly human?

(2.) *The Factors of the Human Mind—Power, Wisdom, Goodness.*—Physiologists, in general, have given us the *factors of life*—seven or more mysterious and wonderful actions. Let us turn to the metaphysicians for the *factors* of the human mind, which are to be compared with the *factors* of Life.

Almost all metaphysicians have recognised, under some terms or another, *three* very

marked and separate, but connected, likenesses of all human minds, which I submit, therefore, by general consent of metaphysicians, may be called, and are, the *three factors* of the human Mind considered as one mental being—viz.,

Sense,	Feelings,	Emotion.
Understanding, or	Perceptions, or	Intellect.
Reason,	Sentiments,	Will.

I prefer the three last words to express my thought of the human mind in its totality; viz., *animal*, *intelligent*, and *moral* powers, animal Emotions, intellectual Judgments, and the moral human Will. Man's mind has not parts; it is not made of these three parts, as if they were separable and distinct. Emotion is a mind, Intellect is a mind, Will is a mind, but yet they are not three minds, wholly distinct in the human body, but one mind—the Mind of a man.

In one man the emotional mind is too strong and in excess: he is the passionate man, whose intelligence and moral sentiments do not restrain his emotions, his violent passions, his animal propensities. In another

man the intelligence is in excess: he is the clever, intelligent, cold, hard, immoral, and unfeeling, selfish individual; intelligence, unchecked by animal feelings and affections, and unguided by moral sentiments; the very incarnation of a demon upon earth! Thirdly, there is the sentimental man, full of fine moral thoughts and sentiments, without strong emotions or great intelligence, and incapable of action either for good or evil; wilful, but weak, fickle, and falling; the slave of some stronger human will, and possibly atoning by some affections and by remorse, by a broken heart and worldly wretchedness, for its defects of intellectual wisdom and of moral Will.

Here, however, is the broken image ma has to contemplate within himself. Emotions give general human power! Intellect gives general human wisdom; and Will gives general human goodness, or ought to do so. We thus behold limited powers to act, limited wisdom to see, and limited goodness to direct; but, alas! how defiled, and how defaced, how misery-worn is the coin which bears so plainly written on it, this image and superscription—

POWER, WISDOM, and GOODNESS. Are they not abused and misdirected, and in every man that breathes, at some time or another, wholly degraded and lost?

Let us adopt the words of an author from whom we have so often differed, and from whose published opinions on human society we differ even more widely, if possible, than we have differed from him on philosophy; let us take the words of Mr. Herbert Spencer, and, for once, acknowledge their truth, and thank him for the description of the *fallen* human Mind. "Throughout the rest of creation we find the seed and the embryo attaining to perfect maturity without external aid. Drop an acorn into the ground and it will in due time become a healthy oak, without either pruning or training. The insect passes through its several transformations unhelped, and arrives at its final form possessed of every needful capacity and instinct. No coercion is needed to make the young bird or quadruped adopt the habits proper to its *future* life. Its character, like its body, spontaneously assumes complete fitness for the part it has to play in

the world. How happens it that the *human mind alone* tends to develop itself wrongly? Must there not be some exceptional cause for this? Manifestly!"[1] Manifestly, indeed, there must be a cause for what Mr. Spencer justly calls "this anomaly in nature." Mr. Spencer advocates social *equality*, and no property in land, as remedies for this anomaly in nature!

Homo homini lupus, says the motto assumed by an ancient Saxon family, who saved their lands in the days of Norman William, and who still live on the naturally secluded spot they then occupied. The hills are cleared, the marsh is drained, the river is bridged, and the moat filled up, and the "Social Statics" of English liberty, founded on Christianity, has saved a single family for 800 years and more, proprietors of the same spot of ground. But glance back, not for 800, but for six thousand years, during which, man, unlike all other animals, has shown no more mercy on his kind, no more mercy than a wolf on its prey. Is it possible, after all, that the story of Moses is true, and that, of

[1] "Social Statics," p. 187.

the two first children of the first woman, the elder slew the younger? Verily, on that fatal evening the family of mankind assembled to a bitter supper, and the first man may well have wept like a woman on the neck of the only son that remained to him. How is it that the Hebrew story, "the Hebrew myth," as Mr. Spencer calls it, still seems to speak to man's heart in words that cannot be explained away. Are these really living words? Is it possible, moreover, that the *first murder* was committed in assertion of *equality*, and because of religious hate? "And the Lord *had respect* unto Abel and his offering; but unto Cain and to his offering He *had not respect*. And Cain was very wroth, and his countenance fell, and the Lord said unto Cain, Why art thou wroth, and why is thy countenance fallen? If thou doest well, shalt thou not be accepted? and if thou doest not well, sin lieth at the door. And unto thee shall be his desire, and thou shalt rule over him."

But the Lord had more respect unto Abel and his offering. Did the God of Heaven violate equality, or did He violate Justice?

Yet every good gift, and every perfect gift is from above, and cometh down from the Father of Lights, "with whom is no variableness, nor shadow of turning," says the Apostle who said also, "if any man offend not *in word*, the same is a perfect man." It is, however, clear, that according to this story, the free will and sense of equality in Cain's *mind* was offended, that even God Himself, for His own purposes, should exercise that free choice which he, Cain, the child and the creature of free will, did not approve! Nay, the promise of worldly power over his own brother, willingly obedient, was not able to restrain him from taking vengeance for his offended dignity, on the unoffending cause; or from striving to wipe out his *inequality* before God in his brother's blood! Therefore, the passion for equality caused the first religious hate, and the first murder and the first human death, that ever occurred or is recorded in human words!

This is an example of the Human Mind, of its intellect, emotions, and will. The *free will* of the creature was offended at the *free*

will of the Creator! Thou shalt *not* prefer my brother before me, said the countenance of Cain. All men are born free and equal, said the first murderer, and God Himself shall not violate equality on this earth whilst I, the child of free will, have a right hand to avenge the wrong to the principles of equality, done in my person, by seeing my brother preferred before me, or his offering more highly respected than mine, even by Him who made us both! The promise of worldly power over the humble and submissive, will not restrain the pride and anger of selfish equality at seeing the humble preferred by God. Jealous *equality*, therefore, produced the first passionate emotion of the human mind, and is responsible for the first murder ever recorded in human *words*. Is this, in any way, like Animal Life or Nervous Action?

In truth, however, *the Mind*, the free will of man is a chaos until he can turn like a little child to its parent, and submit himself in all childish truth and simplicity to his father and his God, with his intellect convinced, that He alone can teach him true

wisdom; with his heart broken with penitence, and his free will subdued and, like a child's, anxious and willing to be enlightened. Then, and only then, will the words of Holy Writ strike on his mind, as in every syllable the best adapted that wisdom could devise to help to restore in man the noble image of GOODNESS that sin had defaced. Oh! teachers of that absolute religion, which is absolute nonsense, the FEAR of God is the beginning of wisdom, and without that *fear* we cannot learn to LOVE. But it is the Spirit that quickeneth the human mind, and the very words of Jesus, they are spirit, and they are life. "No man can come unto Me, except the Father draw him," said Jesus; but is He not the Father, and will He not draw all those who ask for that Spirit, in sincerity and in truth, as the same Jesus declared? The Spirit may be life in the mind; but the life in the nerves is not mind, but the instrument of such mind as the animal is endowed with.

Just analogy, therefore, and the highest reason, but not any law of vegetable or animal

growth, may well lead a man's thoughts upwards, by observation of life in the thing, to truer thoughts of life in the mind, and from *free will* in the person, to thoughts of a renewed *life* in the broken image of the Power, Wisdom, and Goodness of God, which we can discern within our own minds!

"Nature, as well as Scripture, tells me, 'that I am the image of God.' He that understands not thus much, has not got his first lesson, and has yet to begin the alphabet of man."[1] The mysteries of the *life* of the body may well teach us by analogy the still greater mysteries of the life of the *mind*. The proper life of the body may lead us upwards to the living unity of emotion, intellect, and free will, returning, in the Spirit, to its One Redeemer and Father, instructed, redeemed, and sanctified; active, enlightened, and *living*, because thoroughly humbled, and converted from the error of its way; and now once more receiving the free gift of eternal life, a spiritual life within. Thus only does mind become life or life-like. The

[1] Brown's "Relig. Med."

attempt to identify life and mind, except by this constantly used analogy of Scripture, confounds body and mind; confounds the life of the body which comes from within and below, and the life of the mind, which must come from without and from above.

No man knoweth the things of a man, save the spirit of man that is in him. The spirit of man is the life of the mind, and if that spirit be not the Spirit of God from above, it will most assuredly be the Spirit of Evil from below. There is a Life of the Body and a life of the Mind, but who can suppose them in any wise the same?

One thing, however, seems quite clear from this example; that to attempt to discuss the identity of such deep abstract thoughts as life and mind, by means of such definitions as the "the adjustment of external and internal relations," is a most inadequate method of presenting to the mind the true meanings of such abstract words. This, which is Mr. Spencer's definition of life, is also absurd — for the word *add-just-ment* assumes, in fact, or may be made to assume, the very *mental* question

in dispute; but the truth seems to be, as he also seems to admit, that the adjustment of *life* is the adjustment effected by God and perfect; and that the adjustment of *mind* is the adjustment of man the broken image of his Maker, and not only imperfect, but altogether "*an anomaly* in nature," which Mr. Spencer himself very properly calls man, or the mind of man. This imperfect or *fallen* human mind cannot, therefore, possibly have grown, on his own showing, out of the perfection of animal life, unless perfection do breed imperfection. That fall from perfection, which Holy Scripture has revealed to man, may require to be explained, but the admission of it negatives the identity of life and mind. The life of the body is quite different from the living spirit of the human mind, though both co-exist in mysterious unity in every man that breathes. Our object, of course, is not to discuss this great question in a few pages, but to give an illustration of an improved method of defining the terms to be compared, viz., Life and Mind.

We submit, therefore, by this example, that

the old Greek system of definition by Genus and essential difference, and by selecting such terms, as may be put into an ordinary grammatical sentence, is utterly inadequate to express what all well-informed men, modern physiologists, and modern metaphysicians, mean and understand by such abstract terms as *life* and *mind*.

We must dig deeper and go to the roots and *factors* of our knowledge, to the indecomposable terms, organisation, absorption, secretion, reproduction, &c., before we have any semblance of a definition of what is really meant, amongst moderns, by the words, *life* and living things. We must discuss and understand what is meant by human Emotions, Intelligence, Sentiments or Will, before we have any semblance of what is really meant amongst us by the words *Mind* and human mental things.

How can we argue about Mr. Spencer's definition, "The continuous adjustment of internal to external relations"?—which might mean the Foreign Office under Lord John Russell—or indeed about any other of the

grammatical definitions which have been given for life, such as Coleridge's "Tendency to Individuation," or Cuvier's "Vortex," or Dr. Whewell's "Constant Form of Circulating Matter." We lose, in such definitions, the whole force of the thoughts of all the living motions and actions discovered by Physiologists, and comprehended under our word Life.

When, however, we reach the material and fundamental *factors* of Life, the likenesses of living things taught us by physiology, the organization, the absorption, the assimilation, the secretions, and the rest, we can, to some extent, compare the absorption of a living body with the so called absorption of a living mind, and so on. Are the absorptions of a living body and of a living mind the same? Then we perceive that the supposed likeness is not identity, but the mere analogy of human language, rising to and teaching the higher by means of the lower; and our conviction becomes confirmed that body and mind are not the same, that the higher human mind has no kind of *iden-*

tity with the principle of natural life in the living matter of a bodily being. Body has a life and mind has a life, but the two lives are not in any way the same or identical, or connected by growth. The analogy is a verbal likeness, not an identical sameness, a likeness of which we need not be afraid; seeing that we have the highest authority for its use; "the Life is more than meat—I am the bread of Life—the *words* that I speak unto you they are *Life*," the Life of the Mind.

Some of the same materialistic philosophers who seek to confound life and mind, also lose themselves in the confusion of cause and law; a confusion of much older date, and for which we might go back to the philosophy of Greece.

Let us also shortly glance at this old question of the world being a machine—a concourse of atoms, which wound themselves up at the first, and have ever since been running down *or up*, some might say, according to law, with no active, living Governor whatever, no MIND perpetually present!

CHAPTER IX.

LAW AND CAUSE.

(1.) *The Cause, Plurality of Causes, no Cause at all.*—The mind of man, as I have said, is a trinity in unity, a product of three factors—Emotion, Intellect, and Will; an emotional mind and an intellectual mind, shared to some extent with the lower animals. But, alas! the noble free will, the holy mind or human self-governor, is defiled and debased, an anomaly in nature. Emotions represent Power; intellect, Wisdom; and will, Goodness.

This degraded free will of Man, dead while it seems to live, is itself the product of a number of distinct faculties, when we think

of it as *the reason*; that higher reason which places man above the rest of the animal creation. The human will has also, at least, three factors—love, veneration, and justice. Man's will is a chaos, which requires the moving of the Spirit of God on its tempestuous waters to restore or redeem it, and to reduce it to light, order, and truthfulness.

I am not writing a treatise on metaphysics or on the human mind, but am desirous of showing the way to the first step in Philosophic truth—the only way, as I conceive, in which men can come to some proper scientific convention about the words they use, in order to arrive at some scientific certainty on philosophical subjects.

The attempt to confound law and cause is certainly one of the most curious attempts contained in all the history of the fallen mind of man, to ignore his Creator, and to hide the nakedness of his rebellion under a confusion of words.

Here, as in all languages and amongst all men, a falsity never shows its face. It wraps itself up in a "wrap rascal" parcel of words,

as Coleridge says—looking both ways at once, hiding its confusion and contradiction in the folds of the cloak. Let us examine this cloak! "The uniformity in the *succession* of events *otherwise* called the Law of Causation."[1] Or take the following: "Causation, in our view of it, not being *fundamentally* different from *order in time*."[2] Such expressions, we say, afford a cloak of words, out of which, in due time, to develop what Mr. Mill calls "the Fundamental error of Bacon," viz., "overlooking Plurality of Causes" for "one phenomenon;" "so contrary," he says, "to all we now know of nature"! Until at last, we actually are told, that "The phenomenon of which he [Bacon] sought for the *one cause*, has oftenest *no cause at all!* And when it has, depends, as far as hitherto ascertained, on an unassignable *variety* of distinct causes!"[3]

Here, then, is the conclusion—an actual *phenomenon*, with a *plurality of causes* or no

[1] "Logic," vol. ii., p. 104.
[2] *Ibid*, vol. ii., p. 133.
[3] *Ibid*, vol. ii., p. 318.

cause at all! or a variety of distinct causes, which you please!

Now, a plurality of causes may mean what I should call a compound cause, but a *variety* of distinct causes must mean variable causes for the same effect. But a phenomenon with *no cause at all!* That indeed must be a phenomenon worthy of philosophic examination, by a philosopher who sets out by saying that words in his work shall always be spoken of as "the names of things themselves." "A thing itself," called a phenomenon, produced by no cause at all!

One's first feeling, on collating these words of Mr. Mill, is to laugh at the absurdity of the farce; the second feeling is to grieve at the tragedy of a noble intellect confused and bewildered by its own *words* on the most important subject that can engage the attention of a rational being!

If "Order in Time be not fundamentally different from Causation," then the phenomenon with no cause must have been before time began, and not in the days of Bacon! If it had no cause at all, it was the First Cause

itself! But it is idle to discuss the possible meanings of Mr. Mill's words, which are evidently absurd, and in themselves self-contradictory. If things have even *an order* in time, they cannot be in disorder; if a thing was a phenomenon in the days of Bacon, it cannot have been without an antecedent in order of time, or without a cause at all! on Mr. Mill's own view of causation. In short, a uniformity without uniformity is a simple absurdity or self-contradiction.

It is evident, upon the face of Mr. Mill's own words, that "order in time," "cause" and "law," have "no signification," no fixed meaning whatever, in Mr. Mill's mind or intellect, if we can judge of that mind and intellect by the words he uses. He can think a law no law; a cause no cause; a uniformity not uniform; and a consequent sometimes with, and sometimes without, an antecedent!

His mind seems a chaos on the subject of causation, utterly confused and self-contradictory. But Mr. Mill seems, to me, entitled to the credit of more candidly disclosing his confusion than some other writers, if he will

excuse a compliment to his conscience, at the expense of his verbal[1] understanding.

[1] While correcting this sheet, the *Westminster Review* for April, 1861, has come to hand, and the first article, that on Mr. Kingsley's "Essay on History," affords a good illustration of the utter confusion of thought, the no-meaning of "advanced thinkers" on the subject of Law. The reviewer has no meaning whatever for the word *Law*, but always connotes to *Law* the various subjects on which laws are known. "Thus," he says, "who does not see that the Law of Gravitation and the Law of the Decalogue are ideas which have little more in common than the sound of an organ and the sound of a codfish?"—evidently connoting the ideas of Gravitation and of the Decalogue to the word Law. And so throughout the article he pretends to answer Mr. Kingsley, by telling him that "Law is not Cause;" and then quotes Mr. Mill's definition of Causation, which actually confounds Cause with Law—viz., the simplest of all laws—*i.e.*, Antecedent and Consequent, or order in Time, "otherwise called the Law of Causation"!

Law is the product of Word and Order, and all laws are *orderly words* laid down by lawyers and lawgivers; and so, the Laws of Gravitation are orderly words from the writings of Newton; the Laws of the Decalogue are orderly words from the writings of Moses; the Laws of Population are orderly words from writers on Population, &c. The question between Mr. Kingsley, whose essay I have not read, and the Reviewer, seems to be whether laws of human history are to be found in the laws of mind or the laws of matter. Mr. Buckle, and self-dubbed "advanced thinkers" in general, or modern materialists, as I understand them, contend for the latter, and Mr. Kingsley, apparently, contends for the former, insisting on not confounding persons and things. Mr. Buckle thinks, or rather says, speaking from my memory of his work, that physical facts are the *causes* of human history; whereas I would contend that human *minds* are the causes of human history and that

Let us, if we can, try and clear up a little this very ancient attempt to confound two such clear and distinct thoughts as *law* and *cause*, and to reduce the universe to a machine or a concourse of atoms, to a Law without a superintending Cause.

(2.) *A Cause at Law and in Nature.*—Let us take the lawyer's use of the words, Law and Cause, and examine it in the first place.

A cause at law is an *action* between a plaintiff and defendant. The plaintiff comes first and the defendant comes after; and when they, the parties, are both present together, there is a legal hubbub—in short, a few WORDS between them; and the cause comes into court before a judge, an admitted possessor of a certain amount of power, wisdom, and goodness. The judge applies or *lays down* the law in words, and the hurlyburly of the cause is at an end; the plaintiff and defendant sink into their new positions in peace,

physical facts are not the causes, but the *limits* or restrictions upon human powers—*i.e.*, upon the human mind, very important to know, but not *Causes Limits*.

and the law-cause is at an end, and has become, in lawyer phrase, a *law-case*, laid by for future reference. Just as we put a book in our *book-case*, good and bad; so we put our law cases registered altogether till we want them. Therefore, we have a law cause, the product of Parties × Action × (power, wisdom, and goodness) ending in a law case. But we have seen, *ante*, p. 228, that mind is a product of power, wisdom, and goodness, in greater or less development. Therefore, a cause equals or is the product of Parties × Action × Mind; and the thing produced is a case of law or law case. Thus the lawyers, at all events, mean by cause, a thing composed of *parties, action, and mind*, producing an *effect* or new arrangement of things and parties, called a law point or law-case. The cause ends in a case; the U in the word, the hubbub, or mutual action of the parties, having been settled and excluded by the Power of the judge.

Now, I say that, not only all lawyers, but all Englishmen commonly use the word Cause in this manner, viz., as a confused action of

parties settled by the Power of Mind. Suppose, therefore, that in place of bringing into court a plaintiff and defendant, two persons, we brought into court an acid and an alkali, two things, or an electric current and some water, in short, any active things, or things in activity; and a hubbub follows between them, action and reaction, ending in a neutral salt in the first case, and two gases in the other, or some other effect or consequence of the action in every case. Well! the cause begins, proceeds, and ends; and in place of an acid and an alkali, we have a neutral salt, or, in place of water, we have two gases, or at the end of the action and reaction we have some other consequence; we have, in short, in every case, a case of chemical law. We thus have two or more law points, or law cases in chemistry. Well, then! is the difference very startling, or, in truth, is there any difference whatever to our human apprehension between the Lawyers' and the Chemists' use of the word *Cause?* Two or more things or particles, not minds or persons, come, or are put together, and there ensues a hubbub or hurlyburly between them,

which we do not in the least understand, but which we call a cause, or antecedent, and it ends in an effect or consequent, a case of natural law. And the chemist or natural philosopher endeavours to pick out the law of the chemistry case, just as a lawyer in his chambers endeavours to get at the law of his law case. In the one case we have *persons* in action, in the other case we have *things* in activity. This is the plain unsophisticated truth, and every Englishman so speaks, and verbally admits it, when he uses the word *Cause*.

Now, I have certainly yet to learn, why we Englishmen are to use the word cause in any other sense, in the courts of natural philosophy, than we do in the courts of our country; or why we are to leave the power, wisdom, and goodness of the judge out of court in the one case and not in the other.

For my part, I will not leave it out till some sufficient reason be given; and, therefore, in the cause between the acid and the alkali, or electricity and water, or any other cause in natural philosophy, I refer the consequent, the neutral salt, or the two gases, to

the due and proper application of Power or mind by the Supreme Omnipotent Judge, by Himself or His agents, universally present in Court; just as I refer the final arrangement between plaintiff and defendant at Westminster to the application of power or mind by the judges there, and endeavour, by searching and examining all the circumstances from the beginning of the cause to the end of it, to find out the law which the authorities must reasonably have intended to lay down.

I cannot refer to the judge himself in the one case or the other; but I can if I choose, in both cases, start a new and similar cause, or try to do so in order to hear a new and more lucid judgment if possible.

The advantage which natural philosophy has over the practice of the law is, that you are more sure of not receiving different answers to the same question in the one case than in the other; but how Cause can be confounded with Law, or how an antecedent or former state of things can be confounded with the law or dead rule according to which the living

power, wisdom, or goodness of the judge, produces a new state of the same things; or how Cause can be confounded with Succession in Time, appears to me a most surprising abuse of words.

Cause is, parties, action, Mind.

Effect is, parties, new arrangement.

And Law is the *verbal* expression or rule which the judge lays down, or which the *lawyer* or the *looker-on* adopts in order to express the change which has taken place, devised by his judgment from the facts of the whole cause, carefully examined from the beginning to the end. Law is *words* in *order*.

Lawyers misinterpret cases, and so do natural philosophers. It is often needful at law to go and search the records of an old cause to find who all the parties were, and whether there were not some other parties than those mentioned in the reports, in order to account for the strange conclusion. But it would be a most surprising effort of *reason*, we came to the conclusion that the judge had left the court, and that the judgment proceeded without him, and that the cause was

settled by the parties ending their difference according to the clock at Westminster, that is to say, by *order in time*, or tossing up which should go first, and which last, or ending in "a phenomenon with no cause at all!" A consequent without an antecedent!

We say, therefore, that in the courts of nature the Judge is always present whenever a cause ends in a case of natural law. And we say that a law of nature is merely *our words* to try and explain to ourselves the reason of the cause ending in an effect or case of the law. When we are puzzled, we try, if possible, to put the *parties* or *particles* to the question, as Bacon recommended. We take them separately, and, if possible, crucify them till they tell us their whole history, and how they came, and what they would do in other circumstances, and whether they are single or double, and so forth, and turn them round and round, and backwards and forwards, and inside out, if possible, both while the cause proceeds, and before it begins, and after it ends, and we register every answer they give us; and, without doubt, the Great,

and All-powerful, and All-wise, and All-good Judge in the Courts of Nature, approves of man's searching disposition. He says, "My son, get wisdom!"

External nature was intended to rouse our sluggish spirit, to elevate us from the pleasures of sense to the pleasures of intellect, and from the pleasures of intellect to the glories of that Divine goodness which is dimly shadowed in the best feelings of mankind. But what possible excuse is there for any man who admits the existence of an Omnipotent God, to hide this plain state of the case with "order in time," and "the uniformity of the succession of events;" and, as it were, to use the very *goodness*, and clearness, and certainty of God's law, as a reason for turning the judge out of his own court, in the decision of the *cause* between his own subjects, his own creations, his own particles of matter?

Now, how is this absurdity attempted to be supported? first by shuffling *cause*; which does of necessity, according to all English usage, imply compound parties, and some action between them, into a *single antecedent*; and se-

condly, by shuffling the new state of the parties when the cause is concluded, also into a single *consequent*, and calling this new state of parties, the *effect* of the first state; just as if this new arrange*ment* was effected without any *mental* power or interference whatever, as if arrange*ments* were made by blind particles of *non*-thinking things of their own accord, and according to the most beautiful, sublime, and subtle laws that man can conceive in his loftiest mind, and express in intelligible words and symbols!

However, if materialistic philosophers choose to use the word Cause in a manner different from all Englishmen, who understand by *cause*, an action between two or more persons, and thence by analogy, transfer it to action and reaction between two or more external things or particles, and consider *cause* as an action between two or more things ending, in both cases, in some new arrange*ment* of persons or things, by the fiat of a powerful, wise, or good Judge, they are bound to give us some clear and intelligible new meaning for the old word *cause*. What

produces the thought of cause in their mind? in short, if it be not as I say, the product of *parties*, *action*, *mind*, ending in a new arrange*ment* of the parties, the persons, or things, called the law case; either the municipal law case, or the natural law case, or the moral law case: what do they mean? Can these philosophers give us any meaning without being self-contradictory as above, like Mr. Mill? and can they avoid talking of a consequent which had no antecedent, *i.e.*, "a phenomenon with no cause at all," or of "order in time," with *no order* at all, *i.e.*, a *variety* of distinct causes for the *same* effect. We are not bound to give up our plain English words for self-contradictory trash of that kind, even on the authority of such a great logician and philosopher as Mr. Mill.

(3.) *The Infra Dig. Argument.*—But the most amusing excuse of some of these philosophers who propose to turn the Great Judge of the Universe out of his own natural court, and to make causes between things decide themselves by order in time, or the clock at Greenwich Observatory, and without His pre-

sence, and action, and power, is what may be called the *infra dig.* argument. It is, in short, beneath His importance; it is *infra dig.* for the Great Judge to be called in to decide a question between an acid and an alkali, or two atoms of matter. In short, let us speak it with reverence, He must be *too busy* to attend to such a multiplicity of trifles as we from habit think the wondrous laws and operations of nature in the meanest particles of matter. What a wretched shuffle this is, to try and hide God's *particular* providence, His omnipresence, and omniscience; and in thought to try and exclude Him from this wondrous universe which He has created, and now sustains at every moment in every particle. In short, this confusion of Cause and Law seems a mere opinion, founded on a personal dislike to the thought of God's particular providence, to God's omniscience, and to His omnipresence. Weak and wicked man strives to thicken the vail that separates him from his Maker, and would rather think of this universe as a great clock wound up by a watchmaker, and then mankind and

all left to work itself down, free from all *responsibility* to any Being; but, of course, leaving the original maker of the watch responsible for all irregularities? That seems the whole secret, and the whole reason that exists for confounding law and cause. Philosophers not only dislike to acknowledge the free will of man, and his fall, and just punishment, but would, if possible, conceal from themselves God's omnipresence and omniscience, His Divine *particular* Providence operating in the meanest particles of matter.

However, we shall continue to hold, both in the laws of nature and in the laws of man, that *Cause* is the product of *parties*, *action*, and Mind; and that *Law* is the *verbal rule or order laid down*, the product of *words* and *order*, which brings, verbally, the old state of parties into the new arrangement. There are very many causes in nature of which we are ignorant; but our business is to search for the first or *antecedent arrangement* of the parties or things concerned, and thence to find some *verbal rule* which will reduce them to the new or *consequent arrangement*.

The order and the uniformity are a part of the law, that is of *our verbal expression* of it, and not any part of the cause, or of the effect. But all our discoveries are still only human words. Our verbal expression of the law must, of course, be orderly and uniform, or it is no *law at all; i.e.*, not by us laid down properly for an intelligent creature to understand. As soon, however, as the Judge is admitted to be always in court, and nothing too mean for His attention, all other difficulties will vanish from the devout and conscientious mind, and he will seek the laws of nature with that faithful humility and reverence which are most fitted to enable us to discover what is both true and useful.

(4.) *Pantheistical Objections.*—But some poor bewildered mortal may possibly exclaim, Why this is Pantheism! Is God in every particle of matter, and in every action and reaction that takes place between every two or more petty particles? To which I answer —Is the Judge at Westminster *in the parties* to the cause, or mixed up with their squabbles, which he settles and determines? No! Well,

then, why are we to suppose any such folly in a natural cause, or a natural action? The power, and wisdom, and goodness of the Judge are not in the particles of matter, but everywhere, operating and enforcing good, wise and powerful laws, and only just as long as He thinks fit; but the Judge Himself is Mind, not matter, nor *in* any matter. Pantheism is as absurd, and as self-contradictory as Pan-Atheism. This is only, as we have so often said, the constant old shift or shuffle between the folly of materialism and the folly of dogmatic idealism. When driven from one refuge, the defeated philosopher flies to another equally absurd.

Thus, however, we are not obliged to use the word cause in two senses, or in none at all. The analogy between persons and things, between parties and parts, between minds and bodies, is perfect throughout, but they cannot be confounded. If the devout mind will but always remembér, who the Great Judge, by whose laws, discovered and laid down by man in human words, all *causes* between material things and their parts and particles, are

settled, he will be in the best frame of mind to discover the truest *verbal* expression for those laws, after he has carefully examined a cause or case of natural law. But if you persist, like a child, in asking for some *verbal* expression for what you and I cannot understand, I can but fall back on the *verbal* expression revealed to Moses in the infancy of man's moral education, and say, that the Spirit of God moves on the face of the earth, and is ever ready to enter the chaos of human free will, and to say, let there be light, to the humble and penitent searcher for the light of Truth. "If ye, then, being evil, know how to give good gifts unto your children; how much more shall your Heavenly Father give the Holy Spirit to them that ask Him."

(5.) *Fundamental Differences and Mr. Mill.*—"I have no toleration for *false words*, and don't wish to have any." If I think them evil malefactors, I desire to crucify them with the truth. It is such words as "strictly speaking," "not fundamentally different," &c., which suffice to baffle an intellect even as powerful as that of Mr. Mill! What can a

logician mean by such trash? What is Mr. Mill's notion of a fundament? and what amounts to a difference? Is a fundamental difference the same as a differential fundament? How can men speak such folly, and make it applicable even to the First Cause; that first Emotion or active Cause in the Divine Mind that we assume to have produced all things? "Order in time is not fundamentally different from causation!" Why, this admits *a difference*, and says it is not fundamental. Does fundamental mean to *found-a-mental-thing-upon*, or *find* a mental thing for? Well, if he cannot found a mental thing upon the difference, and yet admits there is a difference, he should admit his ignorance, and not call two different things by the same name. "The succession of events," *otherwise called* the law of causation! Night the cause of day, day the cause of night! Every first the cause of every second! and every second the cause of every third! and so on; any amount of absurdity rather than confess ignorance, and become humble. Now, is it that Mr. Mill cannot *found*, or cannot *find*, a mental thing; and

not being able to find or found, thinks himself entitled to *confound* order in time with cause, though he knows and admits that he knows them to be *different?* When he next undertakes to enlighten the world about such things as causes and general words, I trust he will have found a Mind, a fundamental thing in every cause; and general words, which, strictly speaking, *always have* some signification, and will be able to use them to better purpose than to manufacture language calculated to mislead men of weaker intellect than himself, and to exclude the Creator from the Universe He has made.[1]

[1] Here I take my leave of Mr. Mill and his Logic, and would do so with respect and esteem if it were only for his Essay on Liberty, and its affecting preface. I trust that the memory of the love of the creature may lead his mind more and more upward to the love of the Creator, whose laws and whose truth have, in my opinion, been outraged by the words in this Chapter remarked upon. On some other occasion I may, perhaps, consider his political parallel between the death of Socrates and the death of Jesus! But when he has more carefully considered the true signification of *words*, I trust that he may be more ready to admit that the truth of a moral revelation in *words* is not only a thing possible, but a thing actual; that he may feel morally the deep truth and wisdom of that Holy Book which makes the pure love of man for woman the highest type of the love of God for man, his friend: and that a book that pretended to be a revelation

(6.) *Works and Words—Efficient and Formal Causes.*—We thus have discussed shortly law and cause, by reducing these words to their factors; and hope that if any reader, who in times past, has found his mind in any-wise bewildered between *formal causes*, and *efficient causes*, and *moral causes* and *final causes*, will candidly read over and consider the verbal solution which we have given, he will discover that it is a pathway clear and distinct across the weary wilderness of words, through which even great philosophers have vainly endeavoured to pass, in the settlement of this question; and that he will acknowledge that our explanation is one which can be rendered throughout perfectly clear and intelligible. Of course it depends on our assumption that the word Cause is a product of parties, action, judge; or in external nature, things, action, Mind, *i. e.*, the mind of God, whenever from God, and which did not openly declare that which to man's mind can only be represented as God's absolute free will, or, as we must say, in reference to man's ignorant mind, "God's *caprice*," *i e.*, His right to act in a way unintelligible to man's highest reason, would have carried on its face a clear and manifest proof that such a revelation did not come from the Infinite Author of this Universe.

we refer to external nature, subject to Him. It of course assumes that there is only one meaning for the word cause, and it adheres to that meaning throughout, and shows that in his most ordinary language man still confesses the Maker whom he sometimes wishes to deny. When the *things* become mental things, *i. e.*, human persons, and the *action* becomes human words, and the *mind* becomes a judge at Westminster, we have a cause at Westminster; but when the *things* are external bodies or particles, and the *action* not the *words* of persons but the *works* of particles, and the *mind* becomes the Creator of the universe, then the cause becomes a cause in Nature.

But, on the one hand, to confound the *mind* of the universe with the *work* of particles of matter, is, we say, mere superstition and idolatry; and, on the other, to deny His presence in every natural cause, in every action of every particle of matter, is to deny His omnipresence, omniscience, and power. There is not a hair of our heads that is not numbered. There is not a sparrow falls to the

ground but by His will; not one of them is "forgotten before God." There is not a particle of matter which works or operates but by his express knowledge, permission, power, and will. Oh! that all men would see and acknowledge this truth of a Divine particular Providence, a truth as far removed from superstition and idolatry as it is from infidelity and blasphemy!

The reader may have perceived that I have, in the preceding discussion of law and cause, assumed the word *action* as some indecomposable thought, sufficiently understood and recognised amongst mankind, whether it refers to actions of persons or actions of things. An action of persons at law is a bundle of *words* of men; an action of external bodies in natural law is a bundle of *works* of particles or natural things. We thus are justly compellable to state the difference between *works* and *words*.

"The *words* that I speak unto you they are spirit and they are life," said Jesus. "Though ye believe not me, believe the *works* that I do." Or, for example, when Jesus, looking

up to heaven, sighed and said, "*Lazarus, come forth!*" was He saying words or doing works?

Whatever thy belief may be, reader, thy words are thine own alone; the *works* of thy larynx and thy tongue, or of thy pen worked by thy arm; or of thine eyes and body, moved by thy mind and adopted by thy will. Words are the works of mind, and works are the *words* of bodies. From our three classes of minds, bodies, and words, in order to distinguish the verbal actions of minds we call them *words*; to mark, as it were, the verbal actions of bodies moved by minds other than man's, we call them *works*. Works are therefore the actions of bodies, and words are the actions of minds! A word of man is an *action* of man's mind, producing an action of his larynx and tongue, or of his arm and pen, and adopted and acknowledged by the mind. In our original conception of Knowledge as the product of mind, things, and words (*ante*, p. 17), "*word*" was more proper than "action," because an action does not become the subject of knowledge until it has received

a name and become a *word*. When an action has received a *name*, then alone can it form a part or factor in human knowledge. Let these few sentences suffice to prevent the cavil which might otherwise have been raised on our use of the word action, to include both words and works.

We are not writing a treatise on the theory of growth or development entertained by those philosophers who endeavour to confound life with mind, and law with cause; but are endeavouring to show how truth and certainty are to be better arrived at by means of our *words*, viz., by fixing and agreeing to fix the *factors* which go to produce the abstract words we discuss, in place of the old Greek logic of a definition. But it is very worthy to be remarked, in reference to life and mind, and law and cause, that there is a Providence which rules man's words, and seems to make it impossible to establish error without our words becoming themselves self-contradictory, and betraying the falsity. Truth is one and simple, and so commends itself to the average of mankind who enact the laws of language

in ordinary matters, that words, in the long run, tend to correct themselves by the very inconsistencies of that selfish free will from which their errors proceed. Men make idols of some verbal truth seen in the partial and one-sided glass of their own mind, and set it up as conclusive against God's truth, which includes all that is verbally true in the human idol.

Thus, for example, the same class of philosophers and moralists who struggle to confound life and mind, and law and cause; who seem to desire to remove the primary Existence to an infinite distance from the affairs of the world and of man; who seek to prove some "pre-established harmony" of growth, whereby the dead matter of a fire mist grew into a planet, and into a plant, and into a protozoon, and from a protozoon developed into the *mind* of a Socrates or a Plato, according to law, are, for the most part, inclined to deny that during the countless ages which they assume to have passed since the first fiat of the law of nature was enacted, any

subsequent fiat of law, or, in short, any succeeding *miracle* can ever have occurred.

But is it not passing strange, nay, contradictory and absurd, that men, who can believe in, and endeavour to establish some law of growth, which is able to produce out of an infinitesimal germ floating in water, the mind of a Socrates and the thinking of a Plato, should believe and assert that the same, or some other, law of growth could not "possibly" produce, five hundred years later, what we Christians term the miraculous birth of a Being or a spirit superior to man from the womb of a virgin? How utterly self-contradictory and inconsistent, we say, must be that mind which entertains as possible this monstrous hypothesis of the growth of Socrates out of a lichen or protozoon, and holds it as not only *possible*, but in some degree *credible* and probable; and yet, at the same time, turns round and tells us, along with the inventors of the "absolute religion," and other self-dubbed advanced thinkers of the present day, that a "miracle is not possible, and involves a contradiction"! If law could evolve the *mind* of a Plato or

Socrates out of a monad or protozoon, even with a "rudimentary eye," why should not some such *law* five hundred years later, evolve a Jesus, a Spirit, much more powerful, and able to teach mankind a still higher life; and to develop in man a still higher mind? why not a Being, a man with a Spirit, as much superior to Socrates and his demon, as Socrates was superior to a monad or protozoon? why not a Being, able of his own mere Will to modify and control all inferior laws of dead or living matter, or to suspend them altogether, just as the life of any animal suspends the inferior laws of chemical affinity. Is not every life a suspension of the laws of mere dead matter? and why are we to stop short with the *life* of Socrates, and not go forward at least in "possibility," to the recorded *life* of Jesus, and to the *Life* Eternal which he offered and promised?

If mind, as these advanced thinkers pretend, grew out of matter, why may not Spirit grow out of mind? If dead matter grew into living matter, and then got up and walked, and reasoned as a man which became a Socrates,

why should not living man at a later period grow into a Jesus, a Spirit able to raise and rising from the dead? Absurd as most of us think the original hypothesis, sure we are, that for the same mind to entertain that hypothesis as possible, and then to deny "the possibility" of the miracles of Scripture is a self-contradiction still more absurd than the hypothesis itself. But the truth is, that these advanced thinkers simply confound analogy with growth. External nature was, doubtless, intended to lead man upwards, to educate him for those higher purposes to which, in some future stage of existence his powers may be adapted. In my "Father's house are many mansions." The universe is wide enough to worthily employ the highest faculties of all God's humble children, even though each required a planet to himself.

But mind and matter are, and must ever remain to man wholly separate and distinct, and he cannot confound them without self-contradiction; and the confusion of Life, and Mind, and of Law and Cause are mere cloudy contrivances to hide this self-con-

tradiction. Matter is the instrument of mind, and every man who speaks, is at some time or other compelled to admit and acknowledge this truth, in order to distinguish between himself and his body, between the ego and the non ego, between the part of himself which can be, and the part which cannot be separated from consciousness and conscience. There is *that something*, and the man who says it is *matter*, merely desires to call A and not A-by the same name in the same discussion. In short, he is a logical shuffler. He may do this unconsciously, and often does so through bad habit; more often perhaps through bad habits of thinking, than through any conscious dishonesty of mind; but the fact remains, and cannot be gainsayed, that materialism and Pantheism are mere verbal shuffles; an endeavour to call the thinking thing and the *non*-thinking thing by the same word.

If any man admits that there is a thinking thing, and also a non-thinking thing, then he is a mere verbal shuffler if he is a materialist or a Pantheist. But of course he

may be subject to what we may call word-blindness, and may be, and ought to be in that case, an object of affectionate pity for such a deprivation of light. "If the light that be within be darkness, how great is that darkness." We can, or ought in such case, to pity and pray for him.

But there must always be many men also, who hold inconsistent opinions; men in whom moral feelings are superior to their logical instinct. These men will admit the premises, or not be able to see their way out of the premises, but yet will refuse to draw the logical conclusion, because it contradicts their moral sense. We wish to speak with sincere respect of all three, when we say, that Sir John Herschel seems to us to stand in this position between Dr. Whewell and Mr. Mill. He throws the weight of his authority first into the scale of Mr Mill's premises and logical principles, and then, afterwards, into the scale of Dr. Whewell's conclusions. We did not happen to meet with his observations till this essay was written; but we cannot reconcile light and darkness on authority. We cannot do better

than conclude this chapter, by referring to what Sir J. Herschel says.

(7.) *Sir J. Herschel on Law and Cause, and Induction and Deduction.*—When it is said by this great astronomer, confirming some of Mr. Mill's logical lucubrations, that "the investigation of truth is to be distinguished from the mere interpretation of a formula." That all truth is obtained "by reasoning from particulars to particulars;" in short, by induction, or by Baconian, rather than by Aristotelean logic. We answer simply that it is not, and we have ventured to take issue on this logical question, and say that no truth whatever can be arrived at by induction or arguing, from particulars to particulars; that it is confounding *truth* with convenience and *utility* to call conclusions by induction truths. It may suit loose talkers, and rule of thumb practicians, to speak of *inductive truths*; but *truth* is too high and pure a word to be thus confounded with that inductive guess work, which some new and more careful observation or experiment may at any time overturn and blow to the winds as a falsity. And we say

that all truth is the strict interpretation of a formula, and that our certainty depends altogether on the certainty of the original axioms and principles from which the truth can be strictly *deduced*. It is, we say, confounding truth and error, to confound these two things, deductive truths, which are necessarily true, if the principles or first assumptions from which they are deduced, are true and necessary; with inductive guess work, though such guess work is very frequently called inductive truths. Do we therefore undervalue induction, or the Baconian method of investigating the wonders of the universe? we say nay! we rather establish it, by placing it on its proper foundation, as merely *provisional explanations*, till better can be devised and observed; thus encouraging the utmost care, and examination, and observation, and experiment, not only at first, but over and over again. We say that it is absurd and inconsistent, and unworthy of a philosopher and astronomer, to call induction "the investigation of truth," and at the same time to say, that "*it must be at once admitted that no*

conclusion from inductive reasoning, i.e., from the observed to the unobserved, can enjoy more than a provisional security."[1] What do men mean by *truth* enjoying a *provisional security?* truth with a *provisional* security only! that is not truth at all; yet this is the only kind of truth possessed by every conclusion, by induction, according to both Sir J. Herschel and Mr. Mill. It may do for ordinary life and practical matters to talk in this loose manner, but surely it is time that such language was banished from the domains of science, and from the writings of philosophers. Calling such provisional guess work *truth*, is confounding truth and falsehood. It is a gross abuse of language wholly unworthy of searchers after truth, and it leads directly to that materialistic idol worship which confounds law and cause, and life and mind.

The same great astronomer who thus, at one time, lends the sanction of his high name to the illogical trash contained in Mr. Mill's logic, speaking of it as "one of the greatest

[1] Sir John Herschel's "Essays," Review of Quetelet, p. 366.

steps yet made in the philosophy of logic, almost a discovery," feels as strongly as I do the shocking absurdities to which it leads, and whilst he is thus deluded and hoodwinked by the verbal skill of the logician, yet nevertheless starts back from the final moral precipice, and rejects the necessary conclusion to which Mr. Mill's philosophy and logic lead the reason. He is pleased with the elevation by Mr. Mill, of the idol *Induction*, though he refuses to be absolutely chained to its car, or to throw his own moral existence beneath its wheels. We cannot, perhaps, do better than conclude with Sir J. Herschel's own observations on another occasion, showing the hesitation of the philosopher, and the confusion that he feels about the words *law* and *cause*, at the same time that he rejects the immoral conclusion which we have been contending against. We did not meet with his observations till this work was written, but they afford a full apology and satisfactory reason for attempting a "careful analysis of the widest of all human generalizations," of which Sir J. Herschel clearly perceived

the necessity, and towards which careful analysis we trust we have made in this essay, some few effectual steps.

He says,[1]

"It is at least high time that philosophers, both physical and others, should come to some nearer agreement than appears to prevail as to the meaning they intend to convey in speaking of Causes and Causation. On the one hand we are told that the grand object of physical inquiry is to explain the phenomena of nature by referring them to their *Causes*; on the other, that the inquiry into causes is altogether vain and futile, and that science has no concern but with the discovery of *Laws*. Which of these is the truth? Whichever view we may take, one thing is certain—the extreme inconvenience of such a state of language. This can only be reformed by a careful analysis of the widest of all human generalizations—establishing a rational classification and nomenclature. So long as uncertainty in this respect is suffered to prevail, so long will this unseemly contradiction subsist, and not only prejudice the cause of science in the eyes of mankind, but create disunion of feeling, and give rise to accusations and recriminations on the score of principle among its cultivators.

"The evil I complain of becomes yet more grievous when the idea of *Law* is brought so prominently forward, as not merely to throw into the background that of cause, but almost to thrust it out of view altogether—as when we are told, for example, that the successive appearance of races of organised beings on earth, and their disappearance to give place to others, which geology teaches us, is a result of some certain *law of development* in virtue of which an unbroken chain of gradually exalted organization from the crystal to the globule, and thence through successive stages of the polypus, the mollusk, the insect, the fish, the reptile, the

[1] Address to British Association, "Essays," p. 674.

bird, and the beast, up to the monkey and the man (nay, for aught we know, even to the angel), has been, or remains to be evolved. Surely, when we hear such a theory, the natural human craving after causes, capable in some conceivable way of giving rise to such changes and transformations of organ and intellect—*causes why* the development at different parts of its progress should divaricate into different lines—*causes*, at all events, intermediate between the steps of the development—becomes importunate. And when nothing is offered to satisfy this craving but loose and vague reference to *favourable circumstances* of climate, food and general situation, which no experience has ever shown to convert one species into another; who is there who does not at once perceive that such a theory is in no respect more *explanatory* than that would be which simply asserted a miraculous intervention at every successive step of that unknown series of events, by which the earth has been alternately peopled and dispeopled of its denizens?

"A law may be a rule of *action*, but it is not *action*. The Great First Agent may lay down a rule of action for himself, and that rule may become known to man by observation of its uniformity: but constituted as our minds are, and having that conscious knowledge of causation which is forced upon us by the reality of the distinction between intending a thing and doing it, we can never substitute the Rule for the Act. Either directly or through delegated agency, whatever takes place is not merely *willed* but *done*. The transition from an *inanimate* crystal to a globule capable of such endless organic and intellectual development is *as* great a step—as unexplained a one—as unintelligible to us, and, in any human sense of the word, as *miraculous* as the immediate creation and introduction upon earth of every species and every individual would be. Take these amazing facts of geology which way we will, we must resort elsewhere than to a mere speculative law of development for their explanation."

(8.) *God in Everything but Evil Minds.*—

We trust that we have made it abundantly evident that it is a most transparent verbal shuffle, the usual materialistic shuffle, to attempt to confound law with cause, and life with mind. The ordinary use of the words clearly acknowledges the difference of the things themselves; and the men who strive to confound them, either have no meanings whatever to their words, or are unable to give any intelligible explanation of their meanings. They simply desire to call A and not-A, by the same name in the same discussion. We have shown that Mind is the product of *power*, *wisdom*, and *goodness*; that Cause is the product of *parties*, *action*, and *mind*; that law is the product of *words* and *Order*, and therefore, only our verbal rule adopted with *provisional security* until we can discover and lay down a better rule; and that Life is the product of all those, at least seven unknown and mysterious words or actions set forth in order at page 215, of all of which man is profoundly ignorant. We cannot tell in the least why any one single living being selects and absorbs the food fitted to prolong its life; and *absorp-*

tion is only the first and simplest of those seven living actions having not the least reference whatever to the power, wisdom, and goodness of the human mind.

We are, therefore, by our ignorance, compelled to find and acknowledge "God in everything," living or not living, save only and except in the wicked, fallen *free will* of sinful man, in wicked MINDS of which man is one example. That is the sole exception known to us, where God's power, wisdom, and goodness is not universally displayed, at every moment, and in every action or act of things and beings. Is there anything in the least superstitious in such a view of nature and of man? We say no! It is the doctrine of the Bible and the doctrine of true reason. In Him we live and move, and have our being; and the most worthy object of each man's existence is to strive to restore, the Divine Image, the Kingdom of God within the human souls, first of himself and then of all those within his verbal influence. But what possible reason exists for thinking MAN the only evil MIND?

CHAPTER X.

CONCLUSION: TRUTH AND NECESSITY.

As I look back over what I have written, in order to conclude this essay on first principles; and to take leave of the reader, with a short summary of my doctrine; it appears to me, that the words which will give most offence, and to some of the most worthy of those readers who have followed me thus far, is the positive declaration that all truth—*i.e.*, all human truth—is verbal truth, words and nothing but WORDS! "Rather than believe that," I hear some reader exclaim, "I hardly wish to be considered on the same side with the author of this Book! All human truth is not verbal truth!" Gentle reader, for if thou

hast read so far as this page of this volume, without being able to clearly explain this verbal puzzle to yourself, I feel convinced that thou art destined to be carried to thy fathers in the shape of a young or an old woman, possibly a scientific old woman! Gentle reader, of what are we speaking? If thou art so faithful as to say of God's truth; I answer well! And is not God's truth, His moral truth contained, as I believe and say, between the two boards of a book called the Bible, in so many *words*, which gentle and simple, and wise and ignorant, are almost alike able to understand, and to apply to the improvement of their moral qualities?[1] That volume is just a volume of *words*, for the most part

[1] We have the authority of the learning of the Regius Professor of Greek at Oxford, for saying, that which I most heartily believe, that the thoughtful, intelligent, English reader, with his English Bible, and nothing else, in his hands, can attain as accurate and thorough understanding of the *meaning* of the original as the man with a roomful of commentators. For almost all, or, in fact, the whole substance of what we know about either the Old or the New Testament, their writers and their words, and the persons and things, or stories they describe or report, is contained in the volume itself! ("Essays and Reviews," p. 384.) One almost forgives the follies contained in this notorious volume for the frank confession of this *one truth*.

written by humble and ignorant men, and for the humble and the ignorant; and each man, thank God, can now please his conscience what meanings he will attach to those words in his own mind, and as he shall answer to his God and my God.

Therefore, I say that the whole of God's revealed truth on earth is *words*, and nothing else but *words*. Do not be afraid of this truth; but rather go to your knees, and pray HIM to enable you to understand and put a *true* meaning in your own mind on the true words you have received, by His Providence, which made you an English child and responsible for the blessings of English childhood, and English manhood or womanhood.

But if thou art "an advanced thinker," or some scientific old woman, still involved in this verbal puzzle, and shalt say that the truth we are speaking of is in one or both our *minds*; or in *things* themselves, and not in the *words* merely, whether of the original authors, or of the translators, either of our sacred books, or of any or all our books of Science; then I again agree with you, that according to the

usual convention of language made by all nations, savage and civilized, we are speaking of the truth of minds and of the truth of things themselves, and not merely of the truth of words. But that convention is, I say, and have proved, founded in manifest and clearly exhibited error.

The truth of *minds* is clearly beyond the possibility of your knowledge and my knowledge. One mind alone can be known to each of us—our own mind, the mind within; for "no man knoweth the things of a man save the spirit of man, which is in him." The truth of *things themselves* is also beyond the possibility of your knowledge and my knowledge; for what we know are only the pulses and vibrations of each of our own nervous systems, and things as they are *in themselves* are utterly beyond man's ken. There remains, therefore, only the truth of *words*, and with that we must humbly be contented, and feel our vast responsibility for that "fire, that world of iniquity, the human tongue," which at times "defileth the whole

body, and setteth on fire the course of nature, and is itself set on fire of hell."

This is the law, the constitution, the essence of our human nature; and composed as Man is, of mind and body, man can possess *verbal* truth only. Let us call it *Mathematical* Truth.

The truths of minds and of things, whether contained in the volume of God's inspiration or in any volume of human Science, consists of signs and symbols, words, and *words* only. The minds and things themselves are beyond our knowledge, and ever must remain so while our minds are clothed with bodies. Our greatest discoveries, our so-called laws of nature, are mere verbal guesses at truth, "with provisional security only," until we can find and adopt better and more apt words and symbols, in order to express the vibrations and pulsations of our hearts and minds, of our feelings and our intellect, guided by our will, as each man contemplates with humility the wondrous scene without, and the more wonderful scene within his own breast.

The best established position in all philosophy is, that things as they are *in themselves*

are unknowable. The external Thing produces vibrations of the incarrying nerves, which end in a Thought; the Thought produces vibrations of the outcarrying nerves, which end in a Word: and the only part of the whole process, which can possibly be compared or discussed by mankind, is the Word which is produced by the unknowable Thought. But some may say, words are external things, and, therefore, also unknowable. But this is a mistake; for words differ from all other external things. Words are the medium between A's thoughts and B's thoughts, and pass into both minds themselves; and though the thoughts cannot be compared, yet the words can be compared and registered, or altered and returned from B to A.

Whenever, therefore, A says that he is speaking about things themselves, or that "his words are the names of things themselves," however justified he may be by the erroneous convention of ordinary language, he is talking absolute *nonsense*; he cannot possibly speak of things themselves, but only of his own

thoughts or *ideas* of things themselves. So whenever B says that he is speaking about general human *ideas*, or that "his words are the names of general scientific ideas—*i. e.*, of the ideas of A, &c.—he also, however justified by the same convention, is talking *nonsense* to others; he can speak of his own ideas, but he cannot possibly speak of A's ideas, but only of A's *words* for his ideas—*i. e.*, of human words. Consequently, C can only set them right, if at all, by establishing some new convention about *words*, and endeavouring to induce them to use their words with greater accuracy and precision, or as he, C, says the words ought to be used.[1]

But it follows clearly from this position, that all words are *logically*, at the same time, Things, Thoughts, and signs themselves. I say that words *are* logically the Things and Thoughts themselves, not merely signs themselves. Men of course profess to distinguish between words and Things and

[1] In this case A is Mr. Mill, B is Dr. Whewell, and the reader must judge how far this book is entitled to the position of C. Let it be spoken with all humility.

words and Thoughts in speaking and writing; they profess to speak or write of Thoughts and Things, and *not of words*, but as it is clear to demonstration that men cannot *in truth* have any knowledge, *i. e.*, they cannot possibly speak or write any true words concerning Things or thoughts as they are *in themselves* external to each man's own mind; and as each man's own internal thoughts cannot possibly be *truly* known or spoken of by any other man than himself—Man can think, but not speak about things; he can speak only about his own thoughts, and can reason only about words; but he can by words teach his fellow-man to think truly about thoughts, things, and words.

In short, if external things themselves are unknowable, we cannot make any TRUE signs of such unknowable somethings. If my own thoughts are the only things really and truly known, then all *true* words can be only signs of my own thoughts, and not of external things, or the external thoughts of other men. Hence, although we all admit that knowledge requires, and is produced by, or is a combi-

nation of, Thoughts, Things, and words, yet the only part of, or factor in knowledge, in which men can possibly agree, or which they can discuss, is the *words* which express the knowledge. The words, therefore, are not merely the *signs* of the thoughts and things in human knowledge, but are the thoughts and things themselves in knowledge, *i. e.*, so far as thoughts and things can be *truly* known by any man who logically understands the words. The *words* are the knowledge so far as man can know it, and they are *logically* the thoughts and things he says he knows, so far as he can truly know them.

When, for example, we say, *the sun is a hot body*, we can affirm, and are affirming nothing about the sun *in itself*, or about hot bodies *in themselves*, but assert merely the *verbal* identity in our own individual mind of the thought of the sun, and the thought of hot bodies; and we invite our fellow-men to try and get the same thoughts into their minds, and to use the same words to express them. Any man who thinks or says that he does or can affirm, in any case, anything more

than this mere *verbal* proposition, contradicts himself and contradicts the best established position of all philosophy, viz., that things and thoughts *in themselves*, as they are external to each man's mind, are wholly unknowable.

Of course we cannot prevent men contradicting themselves. We cannot prevent a man first admitting the truth of philosophy, that things, as they are *in themselves*, are unknowable, and then afterwards asserting that he can give us some knowledge by his words of the things themselves, and not merely of his words for his own thoughts of the things. We cannot prevent men thus contradicting themselves, we can only expose the contradiction when we discover it, and as well as we are able in *words*. Thus, when Mr. Mill says and admits that "The idealists have established their case," and also says that his words are "the names of things themselves, and not of our ideas of things," he contradicts himself, and is in confusion about his words, and thoughts and things, and does not see their true relations to each other; and so

he contradicts at one time what he admits at another time. Either the idealists have not established their case; or words are not the names of things themselves, but only the names of each man's own individual *thoughts* about *things*. This is as clear as the sun at noonday, in true words and true logic, and so we leave it.

But assuming that we have proved this; then it is equally clear, that every word is at the same time, in the knowledge of truth, a sign, a thought, and a Thing itself. The word *sun*, for example, *is* a *sign* of my thought of the sun; it *is*, also, the general human *thought* itself of the sun to all those men who agree with me to use the word for the purpose of human communication on the subject of the sun; and it is also *logically* the external *thing* itself, so called by all men, and believed by all men to exist; in short, the sun is the sun itself. I say the *word is thing itself* in logical or verbal truth, *i. e.*, in the only truth which man can know. We are speaking about *the word*, and thinking about the thing; we are not speaking about the thing, but about

our WORD for the thing. It is merely mental confusion and ignorance of philosophy and of the true limits of human knowledge, that prevents men from admitting this logical truth, viz., that man's *words* are, to every man who *understands* them, at one and the same time logically signs, Thoughts, and things themselves.

Of course, in affirming this I am affirming nothing about thoughts and things external to man's mind, for that is impossible; but I am affirming only a *verbal*, a logical truth, an undeniable truth, a truth of words which all men must admit or contradict themselves.

God has placed man's body as an impassable barrier between man's mind and all other external bodies and all other human minds, and has thereby effectually reduced man's knowledge of *truth* to *words* only. The vibrations of my nerves and the vibrations of your nerves cannot possibly be compared; but our words can be compared, for they are our own creations, and exist in both our minds, and are perceptible to both our senses. But it is certainly of no use, and very absurd, our pre-

tending to know that which God has made it impossible for man to know, viz., the truth as to thoughts and things external to our minds and bodies. Let us, therefore, become humble, and be satisfied to know truly our own thoughts and our own words, and feel ourselves responsible to God for the truths of our minds and for the signs we make to express them truly to our fellow-men.

I have, then, shown, that as ordinary language contradicts this truth of philosophy, a new convention for all scientific language is necessary; and I have demonstrated that all men admit words to be *numbers*, and that words are not simple numbers, but compound numbers, or *products*, and I then have traced all human truth and certainty to its foundation in arithmetical NUMBERS.

This theory is clear, distinct, and demonstrated by deduction from a first principle, which no man who speaks can possibly deny.

I have given two great examples; one the highest truth of mind, the other one of the highest truths of Bodies—viz., the Doctrine of the Trinity and Dalton's Law of Definite

Proportions. Both are verbal truths only, but are necessary, never-ceasing, aud undeniable truths. I repeat, that men who use the words, GOD, KNOWLEDGE, PERSON, FACTOR, must either contradict themselves or admit the truth, the verbal truth of unity in Trinity, and Trinity in unity; for self-knowledge, according to man's nature, necessarily implies three distinct things in one thing: how combined we know not, even in the least knowledge we possess; and, of course, we are infinitely more incapable of knowing, in reference to our knowledge of the nature of the FIRST CAUSE of all things. Each man feels and knows in his own mind the clear distinction between emotion, intellect, and will. Each of these has a mental activity, a life of its own, and is in itself a mind; but how they are combined into *one* human mind we know not, and the nature of God, His Emotions, Intellect, and Will, must be infinitely more incomprehensible to man than man's own nature to himself.

But, nevertheless, the verbal truth of the Trinity is strictly deducible from the two

assumptions of a God and of knowledge, such as man can conceive and know. It is the law and constitution of our human mind, and unless we verbally contradict ourselves, we cannot either deny that there are three persons, units, in the Godhead, or that there are three factors in knowledge. Men, of course, can verbally deny both truths, but if they attempt to prove what they say, they must contradict themselves, and call A and not-A, by the same name. They are obliged to say that thinking and not-thinking are the same thing, which is contradictory; or, as we have proved, that all knowledge is a threefold Unity; and, therefore, all self-knowledge is also a threefold Unity; the three factors in self-knowledge must be *personæ* of self, or otherwise they must say that self is not self, which also is contradictory. This truth, therefore, is a necessary, never-ceasing, and undeniable truth.

But deep and mysterious as is the doctrine of the Trinity, and necessary as it is to the truthful, inner, moral convictions of man, it is still only a verbal truth. No man can say more

than that men must and ought so to think and speak of the Deity. No man, perhaps, would be so presumptuous as to say, or even venture to think, that he has attained any knowledge of the real nature of his Creator, because he has learnt both from revelation and from reason to speak and use certain words for the moral building up of his own mind, after the manner of the Bible, or in the words of Trinitarian Christianity. He will humbly try to use the verbal truth in the way his Bible teaches him; to pray for the gift of the *Holy Spirit*, to worship *the Father* through *the Son* in spirit and in truth. But the nature of God still remains wholly unknown, except in words, signs, and symbols only.

The other example I have given is Dalton's Law of Definite Proportions in the Constitution of Matter.

This I have demonstrated is strictly deducible *à priori* from the word atom, or ultimate particle. Grant me the word atom, or ultimate particle, as applicable to every kind of matter or chemical substance, and you have granted me Dalton's law of definite pro-

portions as a necessary, never-ceasing, and undeniable truth, unless you choose to contradict yourself, as I have proved above, p. 207.

But, of course, every man may refuse, if he chooses to grant either the existence of God, or the existence of knowledge, or the existence of atoms or ultimate particles of matter. And if he holds his tongue about the Deity and knowledge, he is safe from being proved self-contradictory. But if he persists in talking, and affirms anything whatever, then we can, as I have done, Chap. I. and II., prove him self-contradictory for denying the existence of knowledge; and also self-contradictory for denying that knowledge has three *factors*; and also self-contradictory for denying the three factors or *personæ* of the Deity, whose self-knowledge he admits. So, of course, if he ventures to talk about particles of matter, or chemical Bodies, he must either affirm the infinite divisibility of every particle of matter, or grant us Dalton's law as a necessary and never-ceasing truth, or, otherwise, he contradicts himself; a thing

which I have shown it is very easy for word-puzzled logicians and advanced thinkers to do without their being at all aware of it, amidst the confusion of ordinary language.

The remedy which I have proposed for what Sir J. Herschel justly describes as an "extremely inconvenient state of language," is a very simple one, viz., that men of science shall give us always a list of the indecomposable *factors* of the words they discuss.

I have shown that every word is either an indecomposable word like electricity, or chemical affinity, or polarity, or organisation, or absorption, or secretion, or all those words expressing fundamental facts in nature, beyond which we have not penetrated; or else the word is composed of factors, of which a man of science who writes on the subject ought to give a list, as good a list as he can, or hold his tongue about the word, and the thing it represents. I have endeavoured to give several examples of the factors which go to compose my words, or thoughts, or things, KNOWLEDGE, NUMBER, TIME, SPACE, LIFE, MIND, CAUSE, &c., and until better and more

reasonable factors are named, I submit them to the judgment of my countrymen as more carefully than hitherto defining these very abstract words, ideas, or things.

All true words, however, are from God alone. Words without understanding are bodies without a soul, are altogether dead. Verbal truth, living truth, therefore, can only be words understood. Your understanding can never be mine, or any other understanding than your own, and for it, you alone are answerable, and no one else. If your understanding be truthful, it is full of truth; but if you think that you can possess truth without TRUTH possessing your understanding, you know nothing yet as you ought to know it, you have not yet acquired one truthful thought, you have not yet filled with MIND one truthful word. Your words are dead, whilst you think they live. Your mind is darkened whilst you say, we see. God is light and God is truth, and He is as much light and truth in discussing and understanding the verbal truths of external nature, as He is light and truth in discussing or understanding the

verbal truths of your own internal existence. A direct reference of verbal truth to Him, and Him alone, is as much necessary or as never-ceasing in the one case as in the other.

It has been said, that "the laws of nature are the thoughts of nature, and these are the thoughts of God;" but our laws of nature are our thoughts expressed in *our words*, and these words are man's creations, and can have only temporary and provisional certainty to aid and fix man's thoughts; but man's thoughts expressed in man's words, and strictly deduced by man's reason, have all the certainty, and all the truth of the original words, signs, or symbols, from which they are strictly deduced, and so far as the original words and thoughts are necessary and truthful, man's words so deduced are Truth. A law of nature expressed in man's words, and strictly deduced from some original and necessary thoughts and words, have all the necessity of such original and necessary thoughts and words, and no further, and no otherwise. The man who denies such necessity, or denies such truth, denies his own

existence, denies and obscures the truth which God has given to man. He denies the image of God within him.

Necessity, therefore, or never-ceasingness, as applied to truth, can only apply, of course, to verbal truths; and moreover, can never exceed the necessity of the first verbal assumptions, from which the truths are deduced. But as all truth resolves itself into verbal truth, reason and revelation both concur in declaring the vast, the unutterable importance of human words. Reason tells us, as we submit we have proved beyond dispute in this work, that all human truth is *words*, and God has most clearly revealed this truth to man, that "by thy words thou shalt be justified, and by thy words thou shalt be condemned;" "That for every idle word that men do speak, they shall give account in the Day of Judgment." That the reader may clearly see, learn, and be morally strengthened in this great truth, confirmatory of the truth we have been asserting, that all the truths of minds and bodies known amongst mankind, all resolve themselves into truth of

human words, and words only; that the reader may hold this fast, and feeling the emptiness of mere human scientific truth, may be thereby lead to follow more and more after "righteousness, godliness, faith, love, patience, meekness, and to fight the good fight of faith, and to lay hold on eternal life," offered him freely through Jesus Christ, is the final prayer, as it has been the main object of this book. Farewell!

THE END.